CD Midi System FW2017

20/21/22/25/30

Service
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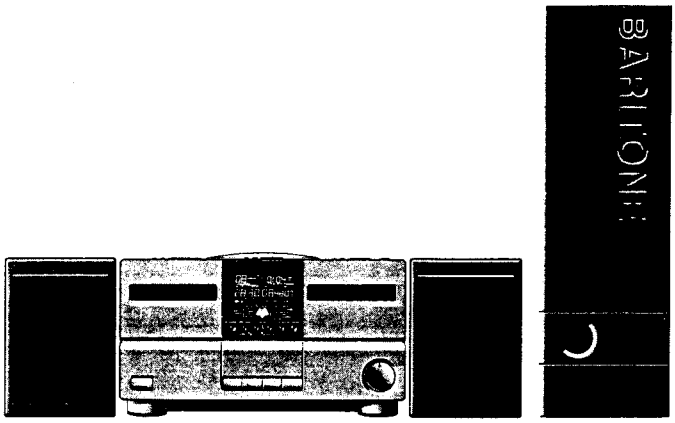

ServiceManual

COMPACT disc DIGITAL AUDIO

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CLASS 1
LASER PRODUCT
3122 110 03420

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4822 725 23707

PHILIPS

PHILIPS

CS 57 052

Specification

General:

Mains voltage	:	220V / 50Hz for /20, /22, /28
	:	240V / 50Hz for /25, /30
	:	230V / 50Hz for /21
	:	120V / 60Hz for /37
Power consumption	:	≤ 150W at maximum output power
	:	≤ 15W in stand by

CD part:

Frequency response	:	20 - 20.000 Hz ±2 dB)
Output level	:	2V ±3 dB
Signal/noise ratio	:	≥90 dB
Distortion	:	≤1% at 1 kHz
Channel difference	:	≤2 dB at 1 kHz
Channel crosstalk	:	50 dB max.
De emphasis	:	0 or 15/50 µs switched automatically by subcode on the disc

Tuner:	FM	MW	LW
Tuning range	87,5 - 108 MHz	522 - 1611 kHz (not for /37) 530 - 1700 kHz (only for /37)	148 - 284 kHz
Aerial input	75 Ω (not for /17) 300 Ω (only for /17)	Frame aerial	Frame aerial
IF	10,7 MHz ± 25 kHz	450 kHz ± 1 kHz	450 kHz ± 1 kHz
Sensitivity	4 µV (2 µV typ.)	3 mV/m (1,5 mV/m typ.)	6 mV/m (not guaranteed above 250 kHz)
Image rejection ratio	30 dB (40 dB typ.)	27 dB (30 dB typ.)	40 dB (43 dB typ.)
-3 dB limiting point	5 µV (2 µV typ.)		

Amplifier:

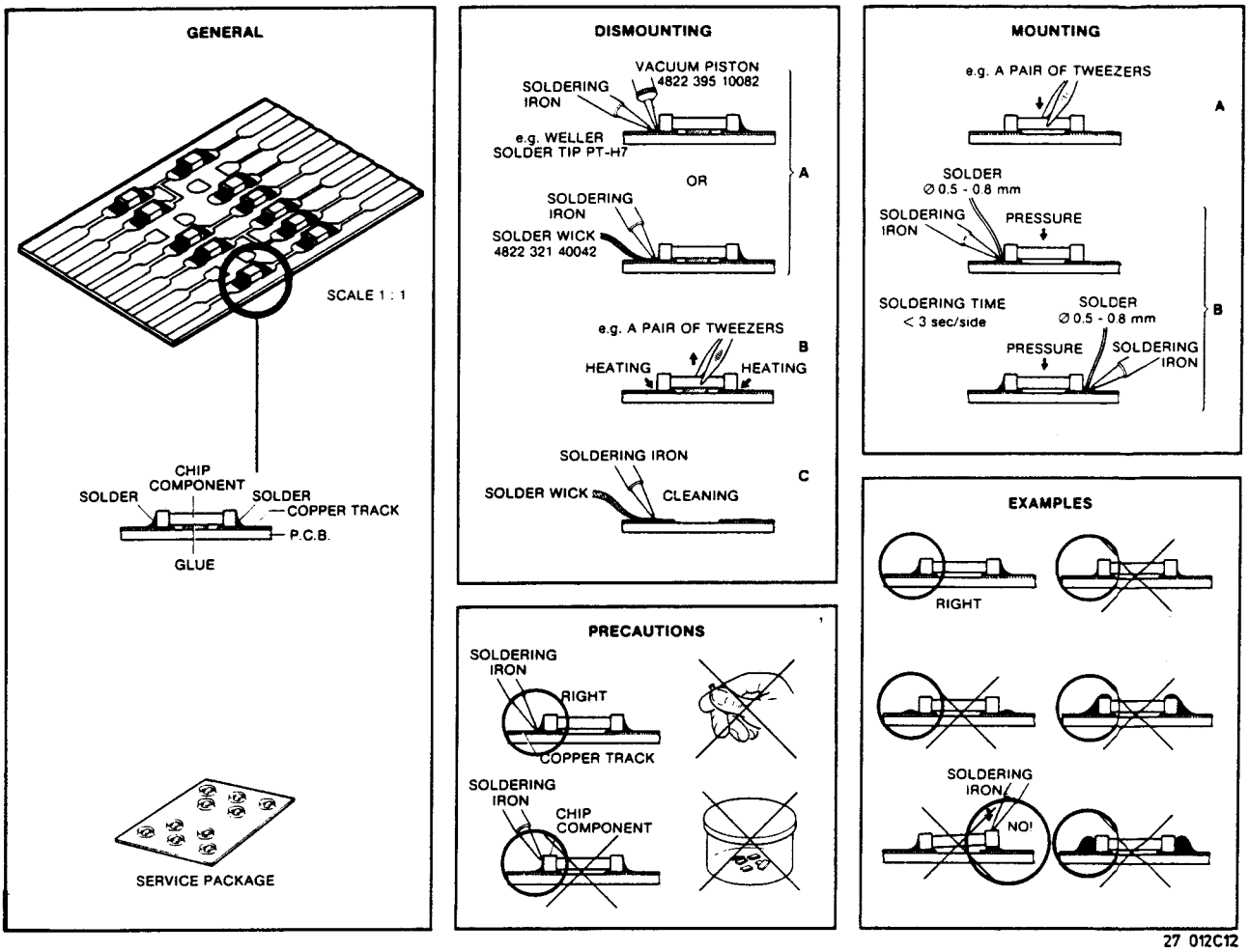
Output power	:	2 x 20W at 8Ω D=0,9% (from 50 Hz to 20 kHz) + 1 x 21W at 4Ω D=0,9% (from 30 Hz to 120 Hz)
Music power	:	2 x 33W at 8Ω + 1 x 50W at 4Ω
Headphone	:	6,3mm stereo jack 1,4V into 32Ω D ≤1%
Power stage protection	:	AC, DC and Shortcircuit
Frequency response	:	Bass 35 Hz - 150 Hz + left and right channel 250 Hz - 20 kHz (-3dB)
Tone control	:	Bass from +10 dB to -10 dB ± 2 dB at 100 Hz
	:	Treble from +10 dB to -10 dB ± 2 dB at 12 kHz
DBB at 80 Hz	:	+10 dB at -40 dB
Input sensitivity	:	PHONO 5,5 mV
	:	AUX. 300 mV
Output voltage	:	LINE 400 mV

Recorder part:

Tape speed	:	4,76 cm/s ±2% in **Normal Speed**
	:	8,55 cm/s ±12% in **High Speed**
Wow & Flutter	:	≤0,3%
Winding speed	:	≤ 125 s for C60 cassette
Noise reduction system	:	Dolby B (**Noise Reduction** factor: 7 dB typ.)
Erase / Bias system	:	AC 80 kHz
RIF-shift	:	service solution on request
Distortion at 250 nWb/m	:	≤ 3%
Channel difference at PB	:	≤ 3 dB
Channel difference overall	:	≤ 3 dB
Channel separation	:	≤ 20 dB at 1 kHz
Track separation	:	≤ 50 dB at 1 kHz

	IEC I	IEC II	Dubbing NS	Dubbing HS
Frequency response -5 dB [1]	90 Hz - 12,5 kHz	90 Hz - 12,5 kHz	90 Hz - 12,5 kHz	90 Hz - 12,5 kHz
Signal to Hiss ratio [2]	≥ 51 dB	≥ 54 dB	≥ 51 dB / ≥ 54 dB	≥ 49 dB / ≥ 52 dB
Signal to Noise ratio [2]	≥ 43 dB	≥ 45 dB	≥ 43 dB / ≥ 45 dB	≥ 43 dB / ≥ 45 dB
Erase attenuation	≥ 60 dB	≥ 60 dB	≥ 60 dB	≥ 60 dB

[1] typical value [2] at 250 nWb/m



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ESD

(GB) WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).
Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern.
Sorgen sie dafür, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind. halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anch'a questo potenziale.

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambiago identici a quelli specificati.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

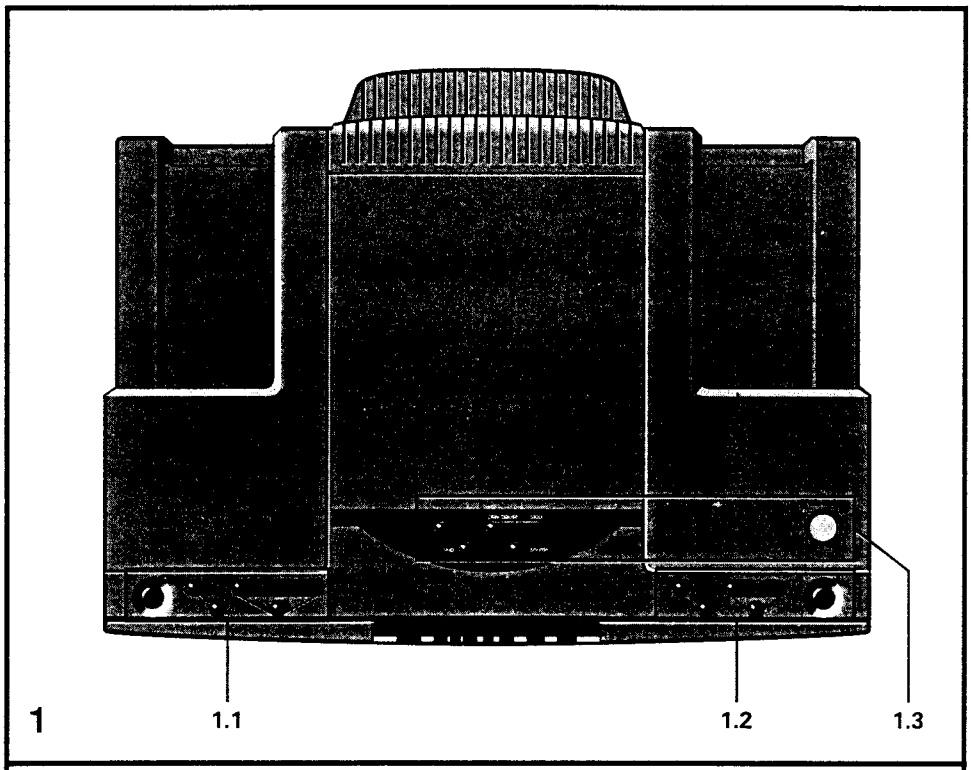
(S) Varo!

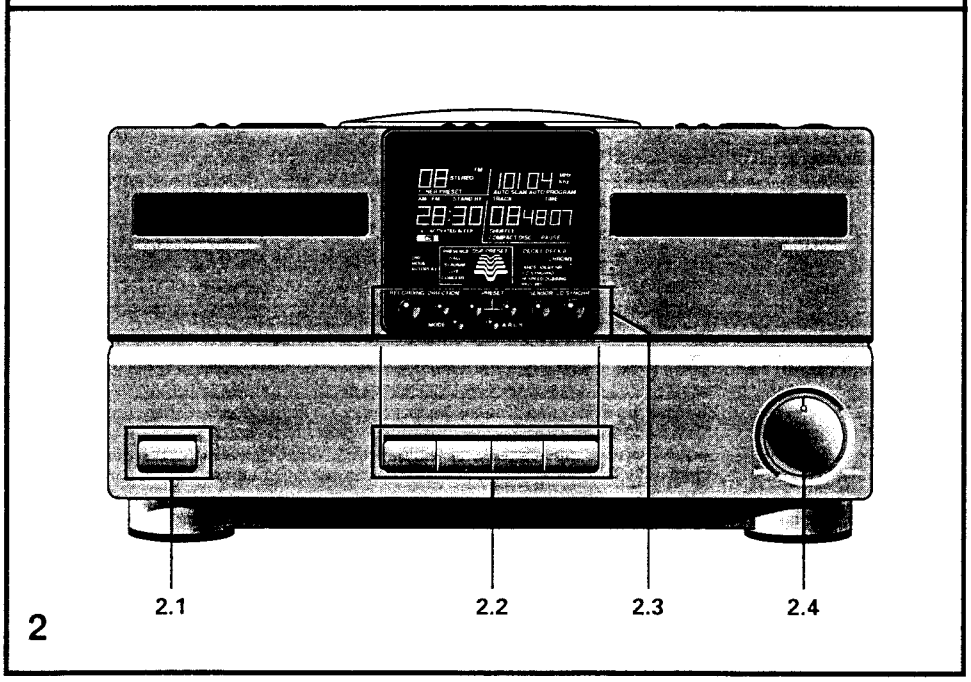
Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

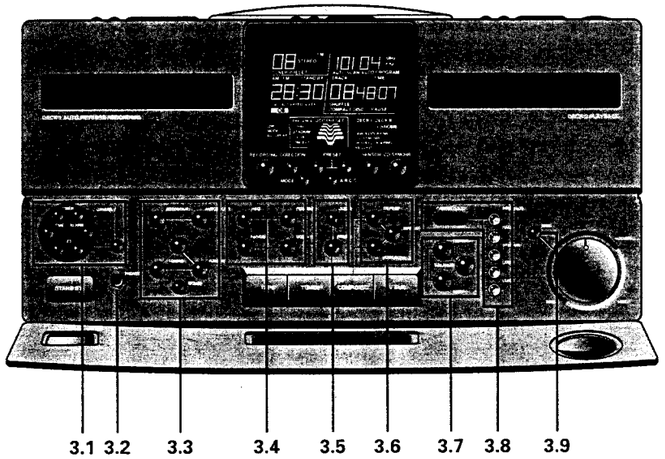
(SF) Varning!

Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad.
Betrakta ej strålen.

Connection & Controls







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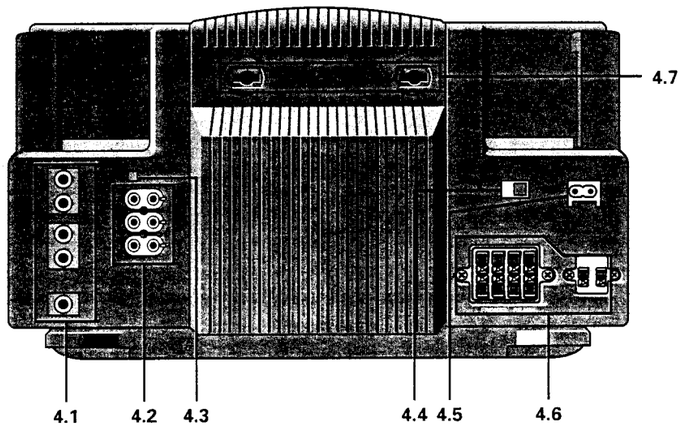

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CONTROLS, Fig. 1

1.1 Control panel of DECK 1 (Switch 4822 276 13066)
EJECT: to open the cassette compartment.
WIND: fast winding in the direction indicated.
PLAY: to start playback in the direction indicated.
PAUSE: to pause during recording/playback.
STOP: to stop recording/playback.

1.2 Control panel of DECK 2 (Switch 4822 276 13066)
WIND: fast winding in the direction indicated.
PLAY: to start playback.
PAUSE: to pause during play.
EJECT: to open the cassette compartment.
STOP: to stop playback.

1.3 Control panel of the CD player (Switch 4822 276 13066)
SKIP: to select the required track.
PLAY/PAUSE: to start playback/pause during play.
STOP: to stop during play.
SHUFFLE: for playing all tracks in a random order.
OPEN/CLOSE: to open/close the CD tray.

CONTROLS, Fig. 2

2.1 ON/STAND BY button (Switch 4822 276 13066)
To switch on and off (stand by).

2.2 TAPE DECKS - TUNER - COMPACT DISC - TV/AUX buttons (Switch 4822 276 13066)
To switch on and/or select the sound source.

2.3 Control panel of Tuner and Cassette Deck (Switch 4822 276 13066)
RECORDING: press (for at least 1 second) to start recording.
DIRECTION: to select the tape direction (deck 1).
MODE: to select continuous playback or autoplay function.
PRESET: to select stored preset stations.

SENSOR: infrared receiver for the remote control unit.
CD SYNCHRO: for synchronous starting when dubbing a CD to a cassette in deck 1.
A.R.C.S. (Auto Rewind CD Synchro): for first fast reverse and then synchronous starting when dubbing a CD to a cassette in deck 1.

2.4 VOLUME (Potmeter 4822 102 10441, Led 4822 130 81678)
Volume control with indicator (flashes when the remote control unit is used and is lit when the unit is on or in stand by mode).

CONTROLS, Fig. 3

3.1 TIMER control panel (Switch 4822 276 13066)
TIMER: to set the start and stop time when using the timer function. For example, to make a recording when you are absent.
TIME: to set the time. Then press SET - or + and finally TIME again.
ALARM: to set the alarm time. Then press SET - or + and finally ALARM again.
SET - and +: to set the time and alarm time.
CANCEL: 12 or 24-hour setting (after pressing TIME): to switch off the timer and sleep function.

3.2 PHONES (Socket 4822 265 20534)
Socket for headphones (impedance 32 - 1,000 ohms). When headphones are used, the loudspeakers are switched off.

3.3 TUNER control panel (Switch 4822 276 13066)
AUTO SCAN: to scan stored preset stations.
AUTO PROGRAM: to program preset stations automatically.
BAND: wavelength selector button.
TUNING: tuning buttons.
MONO: to reduce noise when receiving weak stereo transmitters.

3.4 Cassette deck function buttons (Switch 4822 276 13066)
H.S.D. (High Speed Dubbing): to dub at high speed.
DUBBING: to dub at normal speed.
CHROME: selector button for type of tape.
DOLBY NR button: to switch the Dolby NR (Noise Reduction) system on and off.

3.5 Programming buttons for Tuner and CD (Switch 4822 276 13066)
CLEAR: in TUNER mode: to erase the indicated preset station. In CD mode: to erase programmed CD tracks from the memory.
PROG.: to store preset stations and CD tracks in the memory.

3.6 CD control buttons for special functions (Switch 4822 276 13066)
REPEAT: to repeat all tracks or a program.
REVIEW: to check a program.
INTROSCAN: to play the start of all tracks.

3.7 Sound controls (Potmeter 4822 101 21169)
BASS and TREBLE: tone colour controls to adjust bass and treble.
BALANCE: balance control, to correct differences between the left and right-hand channel.

3.8 DSP buttons (Switch 4822 276 13066)
With the Digital Sound Processor, you can select special sound effects. You can choose from PRESENCE, HALL, STADIUM, LIVE and CONCERT.
Press CANCEL DSP to switch off the Digital Sound Processor.

3.9 DBB button (Switch 4822 276 13066)
To emphasize bass tones.

CONNECTIONS, Fig. 4

4.1 Aerial connections
AM **(4822 267 40668)**: for the frame aerial supplied for long wave and medium wave (LW/MW). Aim the aerial for optimum reception.
FM 75 Ω **(4822 267 31128)** for FM aerial. You can connect the auxiliary aerial supplied to this. The use of an FM outdoor aerial or cable aerial is recommended for good FM stereo reception.

4.2 Audio sockets (Chinch socket 4822 267 20373)
AUX: input for connecting a record player with a magneto-dynamic cartridge, or for a separate recorder (only for playback), a separate amplifier etc.

If a record player is connected, put button 4.3 **(4822 276 13169)** in the MD position before switching on the unit, to avoid noises. If you do not connect a record player, always put button 4.3 in the AUX position.

TV: input for TV sound or a video recorder.
AUDIO: output for connecting a separate recorder (only for recording), or a separate amplifier.

4.3 MD/AUX switch (4822 276 13169)
Set this switch to the MD position when connecting a record player with a magneto-dynamic cartridge to the AUX input sockets. If you do not connect a record player, always put button 4.3 in the AUX position.

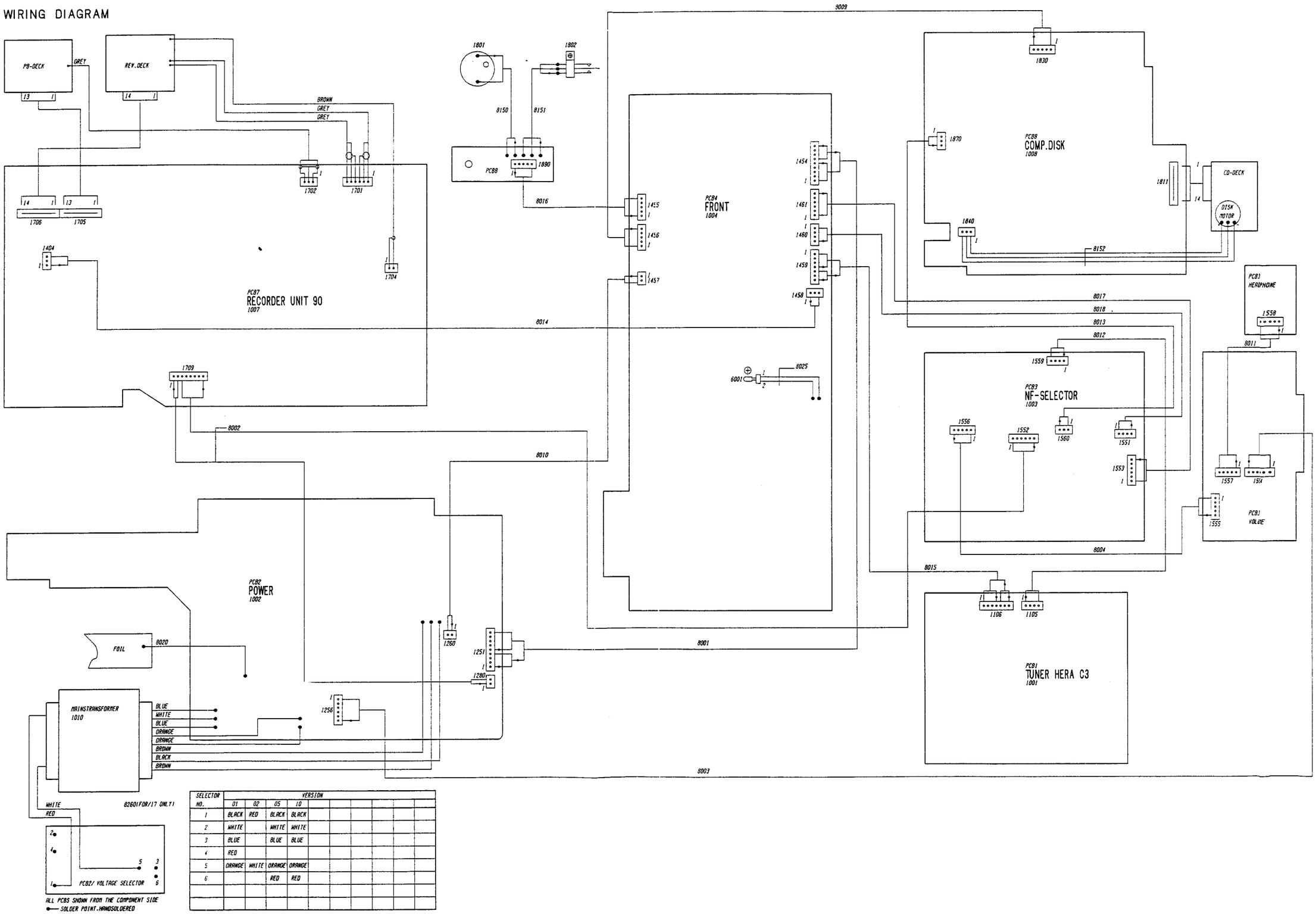
Always switch the unit to stand by, before operating the MD/AUX button 4.3, to avoid undesired noises.

4.4 VOLTAGE SELECTOR (4822 272 10269 not on all versions)
If your unit has a voltage selector, check that it is set to the local mains voltage.

4.5 MAINS (4822 265 20291)
Socket for the mains lead.

4.6 Loudspeaker connections
SPEAKERS 8 Ω : for the SATELITE speakers.
BASS 4 Ω: for the BARITONE bass speaker.

WIRING DIAGRAM



SELECTOR NO.	VERSION									
	01	02	05	10						
1	BLACK	RED	BLACK	BLACK						
2	WHITE		WHITE	WHITE						
3	BLUE		BLUE	BLUE						
4	RED									
5	ORANGE	WHITE	ORANGE	ORANGE						
6			RED	RED						

POWER BOARD

The output stage is switched on via the voltages +STBY and -STBY. These voltages are derived from the voltages +VCC1 and -VCC1, respectively, and can be switched off via the astable monoflop (TS7287, 7290). This astable monoflop has the task of switching off the output stage in the event of a fault (short-circuit or DC at the output). If a brief fault occurs, then the output stage will be switched off for around 4-5 seconds (charging time of C2276 via R3288). In the case of prolonged DC voltage at the output, TS7287 will operate as a switch (see faults +/- DC at the output) and switch off the output stage for the duration of the fault.

Without fault is the state of the monoflop whereby TS7290 is conducting and is blocking transistor 7287 via R3291. As a result, the collector of TS7287 is HIGH (approx. +11V). Via R3286 the base of TS7280 also becomes HIGH and switches the latter through. This causes TS7279 and 7282 to block. Transistors 7278 and 7283 are conducting and switch through the voltages +STBY and -STBY respectively.

Faults:

+DC at the output: Via D6287 a positive voltage arrives at the base of TS7287, causing the collector of TS7287 to become LOW. TS7280 blocks. Via the potential divider R3279/R3281 a voltage of approx. 1V presents itself at R3281. The result is that a voltage of approx. 0.7V lies on the base of TS7279 and the emitter of TS7282 respectively. The transistors switch through and thus block TS7278 and 7283. The voltages +STBY and -STBY are not switched through and the output stage is not operative.

-DC at the output: Via D6290 a negative voltage arrives at the base of TS7290, causing it to block. At the collector of TS7290 there now reside around +20V. TS7287 is switched through via R3291, causing the collector of TS7287 to become LOW. TS7280 blocks and switches the unit to standby.

+/-DC pulse: Normally, there are around 3V DC at C2276. If TS7287 is now brought into conductance by a pulse (+DC across D6287, -DC across D6290/TS7290), then the end of the elco, which had previously been charged to +11V, is suddenly on earth. As the other end of the elco was around 3V more negative, a negative voltage now lies at the base of TS7290 and blocks it. Consequently, around +20V reside at the collector of TS7290. The +voltage arrives at the base of TS7287 via the potential divider R3291/ R3274+3249 and keeps it in conductance. Meanwhile C2276 is charged via R3288. After 4-5 seconds the voltage at C2276 has risen so far that transistor 7290 is switched through again via R3289, causing transistor 7287 to be blocked again via R3291.

Short-circuit at the output:
The principle on which the circuit operates is explained only on the basis of the **right-hand channel** and is of course also valid for the left-hand channel and the bass channel.

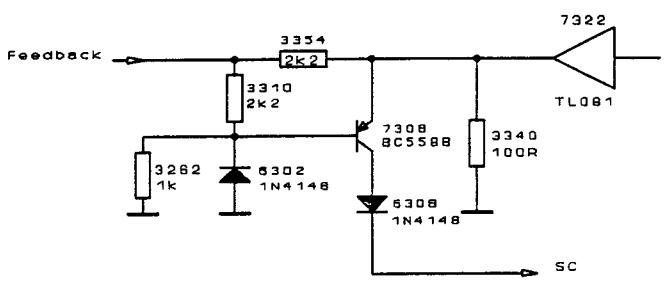
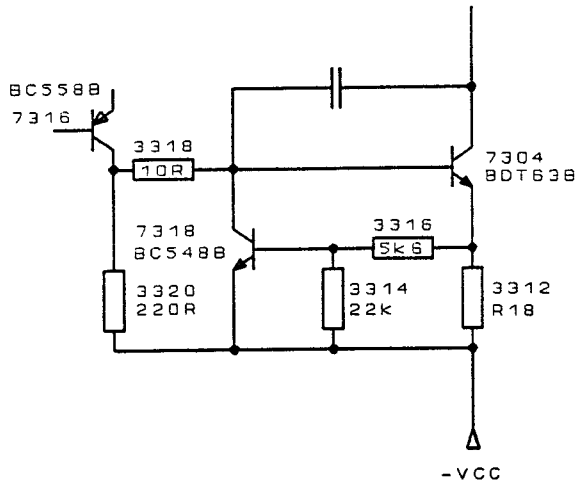


Fig. 1

In normal operation, with every positive half wave via the feedback the base of TS7308 becomes more positive than the emitter. The transistor remains blocked. D6302 prevents switching through during the negative half wave.
If during the short-circuit at the output the signal being fed back falls away, in the case of the positive half wave the emitter becomes more positive than the base. TS7308 is conducting. D6308 is for a positive pulse in the conducting direction. Via R3274 this positive pulse reaches the base of TS7287 and switches the latter through. The astable monoflop switches off the output stage, as described under fault +/-DC pulse, for 4-5 seconds. Due to threshold voltages (7308, 6308, 7287), this short-circuit interruption will only operate from around 1.4Veff at the output of IC7322.

Current limitation:



If the emitter current through TS7304 increases, the voltage at R3312 will also increase. Via the potential divider R3316/3314 the latter also reaches the base of TS7318. Once the threshold level is reached, TS7318 switches through. Consequently, the base of TS7304 becomes more negative than the emitter and blocks.

Fig. 2

Signal path:
The circuit shown in Fig. 3 corresponds in principle with the circuit in the manual, but components which are not absolutely essential to its basic understanding have been omitted.

The transistors 7310 and 7316 are to be considered as switches rather than amplifier elements. The power supply is switched on and off via the +STBY and -STBY voltages respectively.

If the preamplifier (IC7322) is modulated, a current flows across its load resistor (3340), which in first approximation is calculated from:

$$i_a = \frac{u_e * V_u}{R_A}$$

V_U= voltage amplification of IC7322
u_e= voltage between pin 2 and 3
R_A= R3340

This current must be supplied from the power supply and causes an AC voltage drop at resistors 3324 and 3320 which modulates the output-stage transistors.

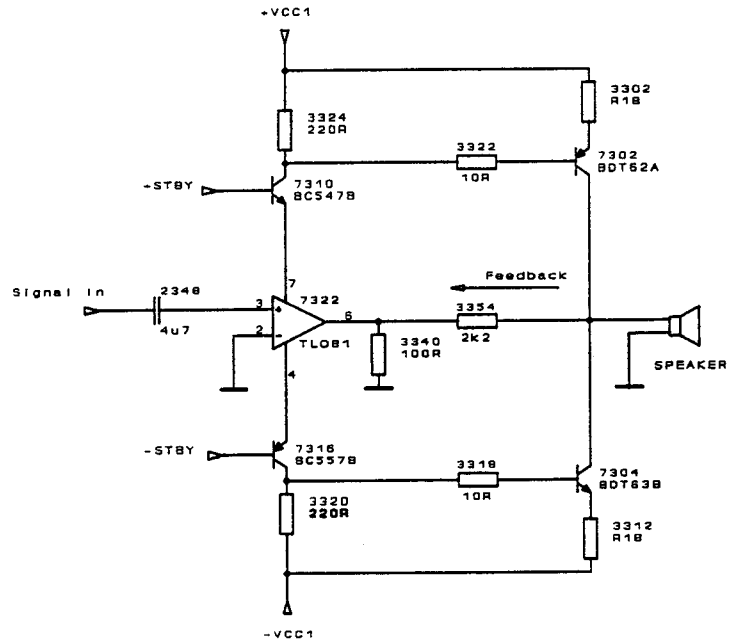


Fig. 3

Mute: The preamplifier is muted. If the base of TS7320 is HIGH, it switches through and short-circuits the input signal of the preamplifier (7322). Muting occurs when:
a) the astable monoflop is active (to avoid plops when switching off the output stage).
b) the headphones are connected (base of TS7284 goes to LOW via connector 1256. TS7284 blocks. The collector is HIGH, so the base of TS7320 is also HIGH.)
c) During the various switching operations (source selector) a MUTE signal (LOW active) is supplied via pin 8 of 1251, so that the base of TS7284 goes to LOW.

SCHEDA DI ALIMENTAZIONE

Lo stadio di uscita viene attivato dalle tensioni +STBY e -STBY. Queste sono ottenute rispettivamente dalle tensioni +VCC1 e -VCC1 e possono essere interrotte attraverso il Monoflop astabile (TS7287, 7290). Quest'ultimo ha il compito di disattivare lo stadio di uscita in caso di guasto (cortocircuito o corrente continua in uscita).
Se la disfunzione è di breve durata, lo stadio di uscita viene disattivato per circa 4-5 secondi (Tempo di carica di C2276 attraverso R3288). Se la corrente continua permane sull'uscita, il TS7287 funziona come un interruttore (Vedere "Guasti, +/-CC in uscita") e disattiva lo stadio di uscita per tutta la durata del guasto.

Assenza di guasto è la condizione del Monoflop astabile, e consente di azionare il TS7290 e disattivare il transistor 7286 attraverso l'R3291. In tal modo, il collettore di TS7287 passa a livello alto (ca. +11V). Attraverso R3286, passa a livello alto anche la base di TS7280, attivando quest'ultimo. Di conseguenza, TS7279 e 7282 si bloccano. I transistor 7278 e 7283 diventano conduttori e inseriscono nel ciruito le tensioni +STBY e -STBY.

Guasti:

+CC in uscita: Attraverso D6287 giunge una tensione positiva alla base di TS7287. In tal modo, il collettore di TS7287 passa a livello basso. TS7280 si blocca. Attraverso il ripartitore di tensione R3279/R3281 si ottiene in corrispondenza di R3281 una tensione di circa 1V. Di conseguenza, sulla base di TS7279 o sull'emettitore del TS7282 è presente una tensione di circa 0,7V. I transistor si attivano e bloccano così TS7278 e 7283. Le tensioni +STBY e -STBY non entrano nel circuito e lo stadio di uscita non funziona.

-CC in uscita: Attraverso D6290 giunge una tensione negativa alla base di TS7290. In tal modo, quest'ultimo si blocca. In corrispondenza del collettore di TS7290 sono presenti ora circa + 20V. TS7287 viene attivato attraverso l'R3291. In tal modo, il collettore di TS7287 passa a livello basso. TS7280 si blocca e predispone la macchina in Stand-by.

Impulso +/-CC: Di norma, in corrispondenza di C2276 sono presenti circa 3Vcc. Se ora, attraverso un impulso (+CC attraverso D6287, -CC attraverso D6290/TS7290) TS7287 diventa un conduttore, l'uscita del condensatore elettrolitico, in cui erano prima presenti +11V, va improvvisamente a massa. Sull'altra uscita del consensatore elettrolitico erano presenti circa -3V, ed era presente una tensione negativa sulla base del TS7290, tramite la quale questo viene bloccato. In tal modo, sono presenti circa +20V in corrispondenza del collettore TS7290. Attraverso il ripartitore di tensione R3291 / R3274+3249, la tensione positiva perviene alla base del TS7287 e la tiene sotto tensione. Nel frattempo, C2276 viene caricato attraverso l'R3288. Dopo 4-5 secondi, la tensione in corrispondenza di C2276 è salita a tal punto che, il transistor 7290 viene nuovamente riattivato attraverso l'R3289. Di conseguenza, il transistor 7287 viene nuovamente bloccato attraverso l'R3291.

Cortocircuito in uscita:
La funzione principale del circuito è chiarita solo facendo riferimento al canale **destro** e, naturalmente, vale anche per il canale sinistro e per quello dei bassi.

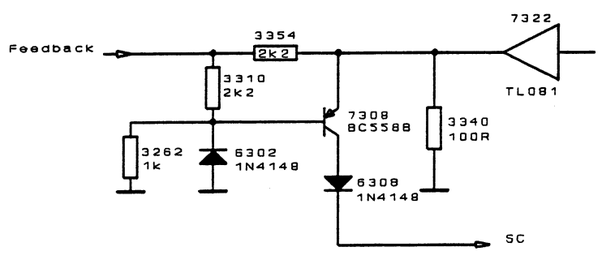


Fig. 1

In condizioni normali, a ogni semionda positiva, la base del TS7308 diventa, attraverso la retroazione (feedback), più positiva dell'emettitore. Il transistor rimane bloccato. D6302 impedisce l'attivazione durante la semionda negativa.
Se ora, per un cortocircuito in uscita, il segnale di reazione viene soppresso, l'emettitore diventa, in corrispondenza della semionda positiva, più positivo della base. TS7308 si attiva. D6308 si trova nella posizione di passaggio per un impulso positivo. Quest'ultimo raggiunge, attraverso l'R3274, la base del TS7287 e attiva quest'ultimo. Il Monoflop astabile disattiva lo stadio di uscita, come nel caso dell'errore per impulso +/-CC per 4-5 secondi. Sulla base delle tensioni di soglia (7308, 6308, 7287) questa interruzione per cortocircuito funziona solo a partire da 1.4Veff in corrispondenza di IC7322.

Limitatore di corrente:

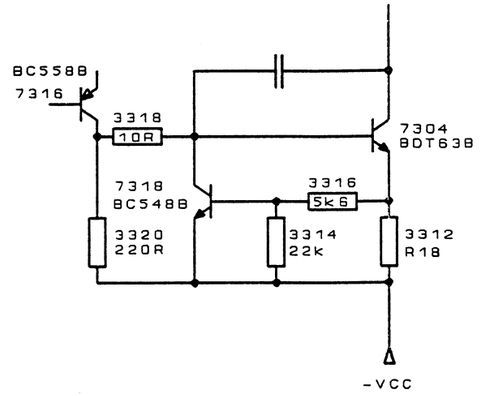


Fig. 2

Con l'aumentare della corrente dell'emettitore attraverso TS7304, aumenta anche la tensione presente su R3312. Quest'ultima, raggiunge, attraverso il ripartitore di tensione R3316 / 3314 la base del TS7318. Se si raggiunge il valore di soglia, TS7318 viene attivato. In tal modo, la base di TS7304 diventa più negativa dell'emettitore e si blocca.

Percorso del segnale:
Il circuito illustrato nella Fig.3 corrisponde in linea di massima a quello riportato nel manuale; tuttavia, alcuni componenti, non necessari per una comprensione generale, sono stati tralasciati.

I transistor 7310 e 7316 non vanno considerati come amplificatori bensì come interruttori. Attraverso le tensioni +STBY e -STBY l'alimentazione viene fornita/interrotta.

Se ora il preamplificatore (IC7322) viene modulato, attraverso la sua resistenza (3340) passa una corrente, che in prima approssimazione viene calcolata con la seguente formula:

$$i_a = \frac{u_e * V_u}{R_A}$$

V_u = Amplificazione di corrente di IC7322
u_e = Tensione tra i Pin 2 e 3
R_A = R3340

Questa corrente deve essere fornita dall'alimentatore e provoca in corrispondenza delle resistenze 3324 e 3320 una caduta della tensione di commutazione, che modula i transistor dello stadio di uscita.

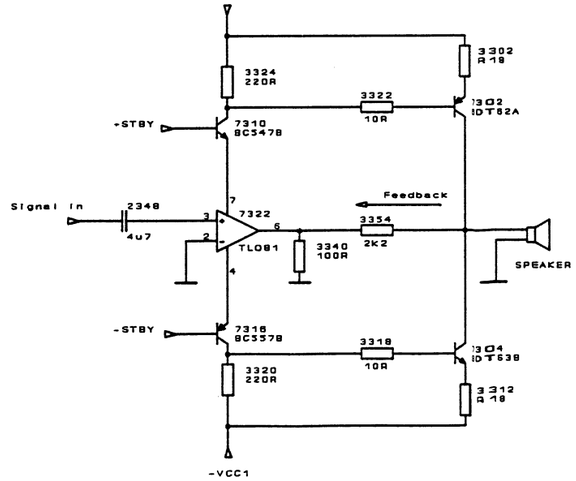


Fig. 3

Esclusione: Il preamplificatore viene commutato silenziosamente. Se la base di TS7320 è a livello alto, essa attiva quest'ultimo e interrompe il segnale di ingresso del preamplificatore (7322). Viene silenziata nei seguenti casi:

a) il Monoflop astabile è attivo (Per evitare Plop alla disattivazione dello stadio di uscita).
b) Le cuffie sono inserite (la base del TS7284 viene portato a livello basso dalla spina 1256. TS7284 si blocca. Il collettore è a livello alto e di conseguenza anche la base di TS7320).
c) Durante i vari processi di commutazione (Source Selector) viene trasmesso un segnale MUTE (attivo a livello basso) attraverso il Pin 8 del 1251. In tal modo la base del TS7284 passa a livello basso.

0026 B10 1270 D 9 2250 G15 2261 F 9 2270 F14 2304 C 5 2379 F 4 2396 G12 3257 H12 3302 C 9 3329 C13 3356 C11 3385 F11 6254 G15 6289 C14 6308 G 3 6364 E11 7280 D15 7304 B 8 7313 B13 7322 G 3 7368 B11
1250 D 5 1271 F 3 2251 G16 2262 G 9 2271 B15 2307 C 6 2380 F 4 2399 F12 3261 G15 3307 C 7 3330 C 9 3360 C11 3387 F11 6257 D16 6290 D14 6309 E12 6365 E11 7282 C15 7305 C13 7314 B 8 7360 B11 7369 D11
1251 E16 1272 D10 2253 G14 2263 F 7 2272 C15 2308 C 5 2384 F12 3250 G15 3264 E 4 3308 C 6 3339 F 6 3364 C 2 3388 F13 6261 G16 6301 F 7 6310 E 9 6380 E11 7283 B15 7306 C 9 7315 C12 7361 B10 7370 G 4
1253 G14 1273 F 4 2254 G15 2264 G 7 2273 D14 2343 F 6 2387 E14 3251 G15 3265 D 4 3311 C12 3340 F 3 3365 C10 5250 F 5 6262 F13 6302 F 3 6311 E12 6381 F11 7284 D15 7307 G 6 7316 C 8 7362 C11 7381 F12
1254 H10 1274 D13 2255 G14 2265 G 8 2275 D14 2344 F 3 2388 E14 3252 D15 3272 C15 3312 C 8 3345 G 6 3369 C10 5251 F 6 6263 F13 6303 D13 6312 E 9 6383 F11 7287 C14 7308 G 3 7317 C12 7363 C10 7382 E13
1255 G10 1275 F 6 2257 F14 2266 F 8 2276 D14 2347 F 5 2390 E12 3253 F15 3277 C15 3317 C12 3346 G 3 3374 C11 5252 F 3 6264 G13 6304 D 9 6360 F 5 7251 B15 7290 C14 7309 C13 7318 C 8 7364 G 5 8253 E 7
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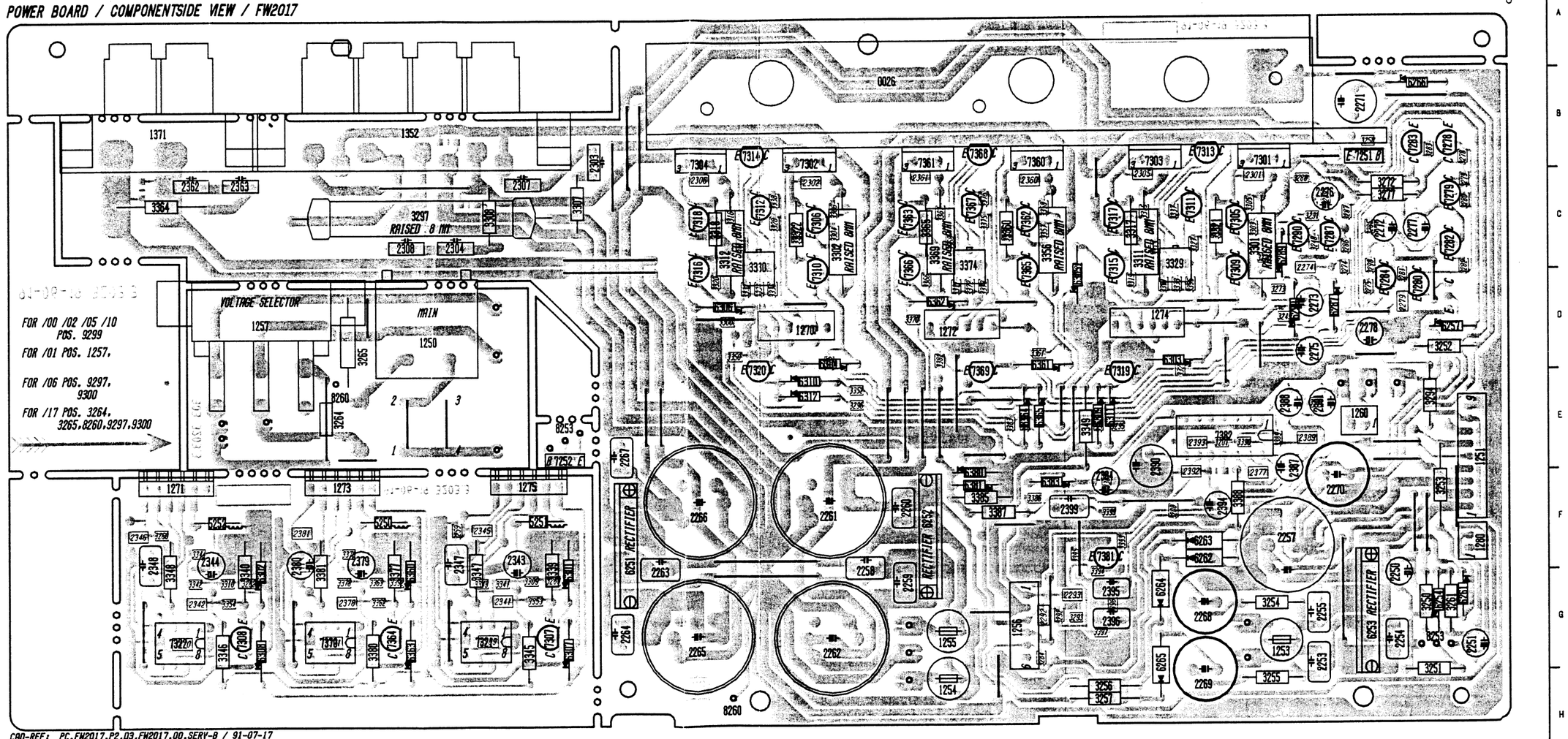

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POWER BOARD

MUTE

CURRENT LIMITER

+VCC1

+ STBY

- STBY

QUIESCENT CURRENT

SUB-PCB

TO FROM VOLUME PART (1554)

HEAD PHONE SWITCH

MUTE TO 1251

FROM 3277

CLICK FIT AK291 1352 SATELLITE SPEAKER BOX

L

SOURROUND SPEAKER

LS

SOURROUND SPEAKER

RS

R

AK291 SATELLITE SPEAKER BOX

SUPPLY FOR L/R OUTPUT

SUPPLY FOR BASS OUTPUT

TO DOLBY PANEL 1709

STAND BY ON/OFF

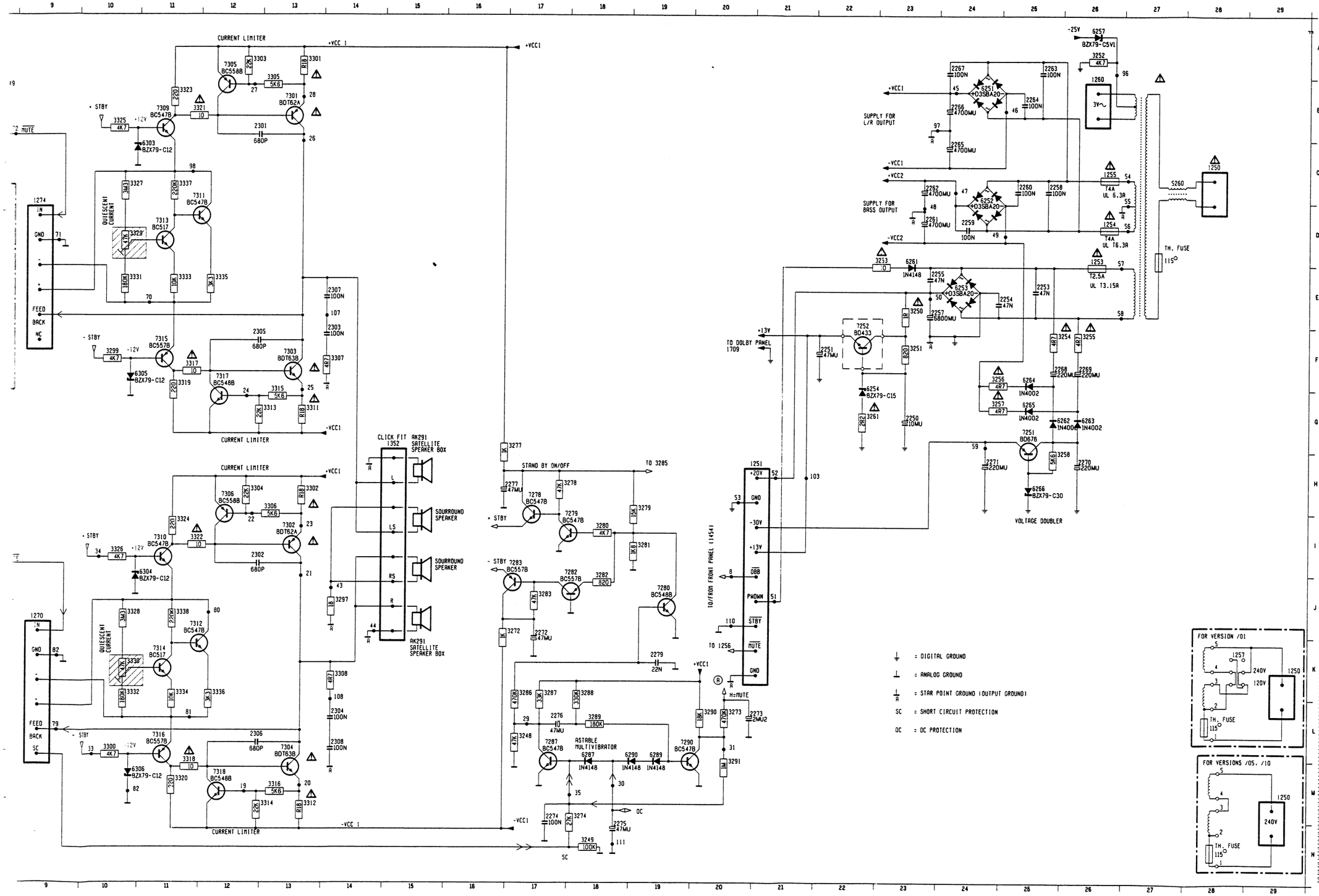
TO 3285

ASTABLE MULTIVIBRATOR

H=MUTE

TO/FROM FRONT PANEL (1454)

TO 1256



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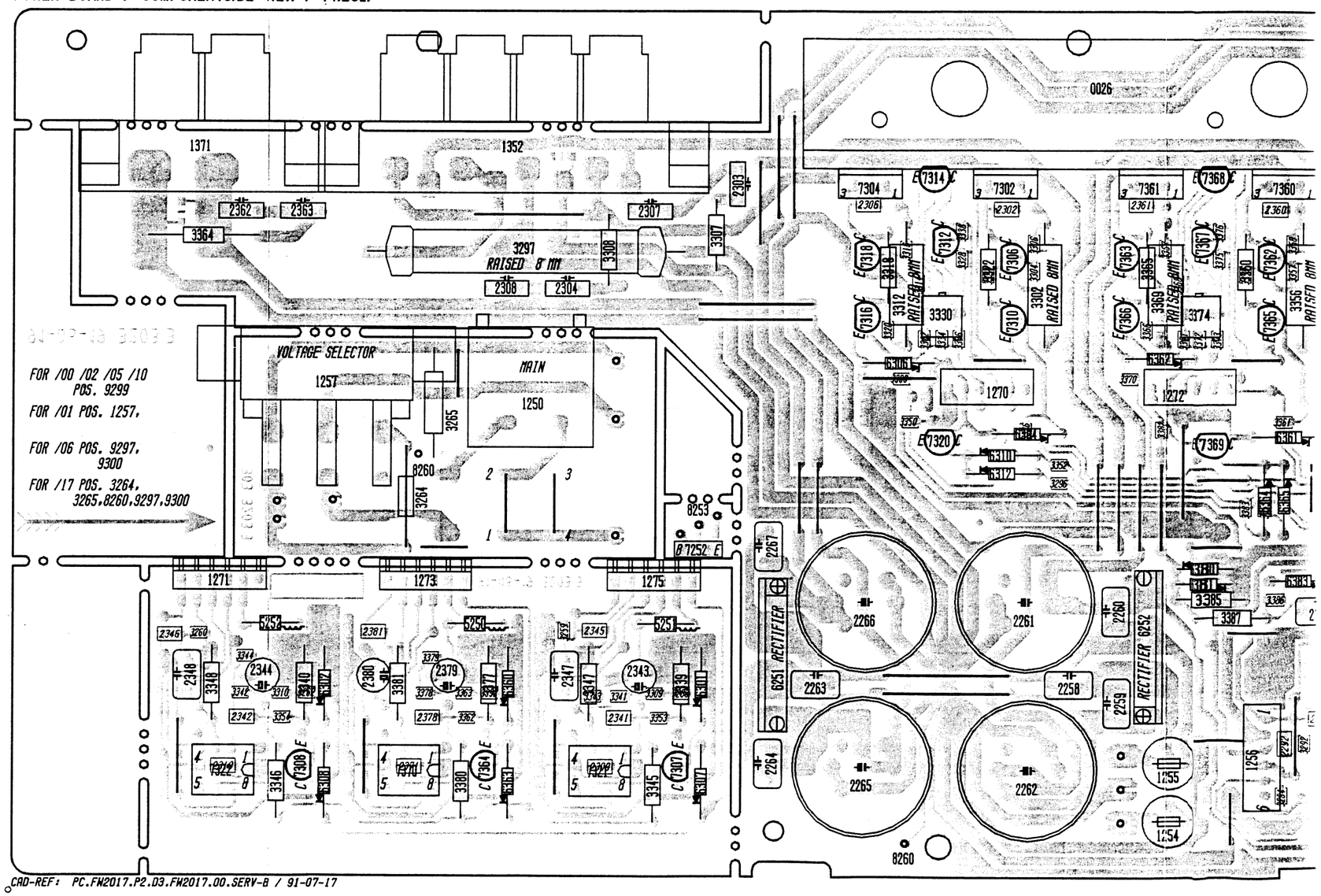

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1 2 3 4 5 6 7 8 9 10 11

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F10	2269	H13	2303	B 7	2363	C 3	2395	G12	3256	H12	3301	C14	3322	C 9	3349	E12	3381	F 4	6253	G15	6267	D14	6307	G 7	6363	G 5	7279	C15	7303	B13	7312	C 9	7321	G 6	7367	C11	8260	E 4

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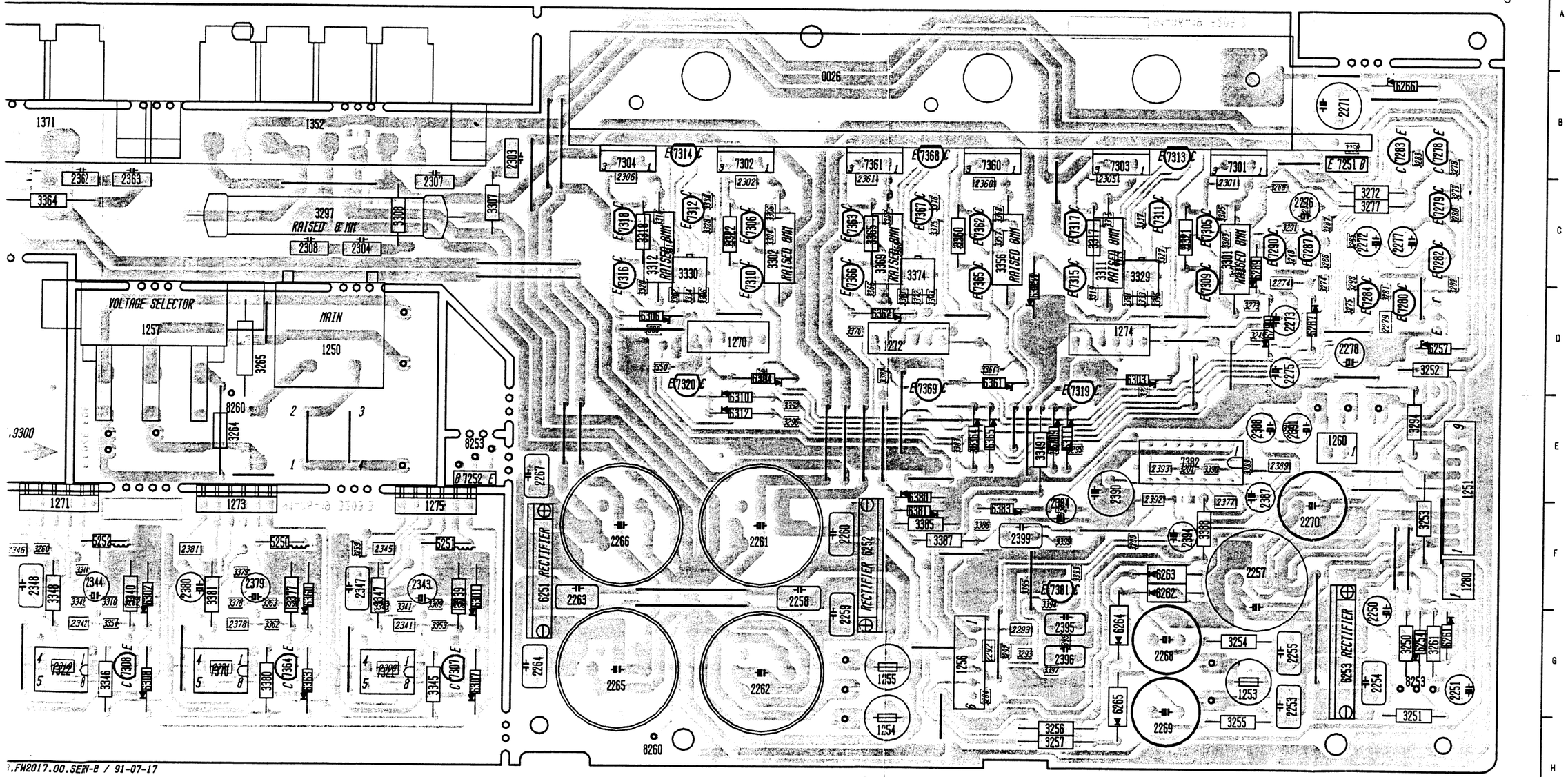
COMPONENTSIDE VIEW / FW2017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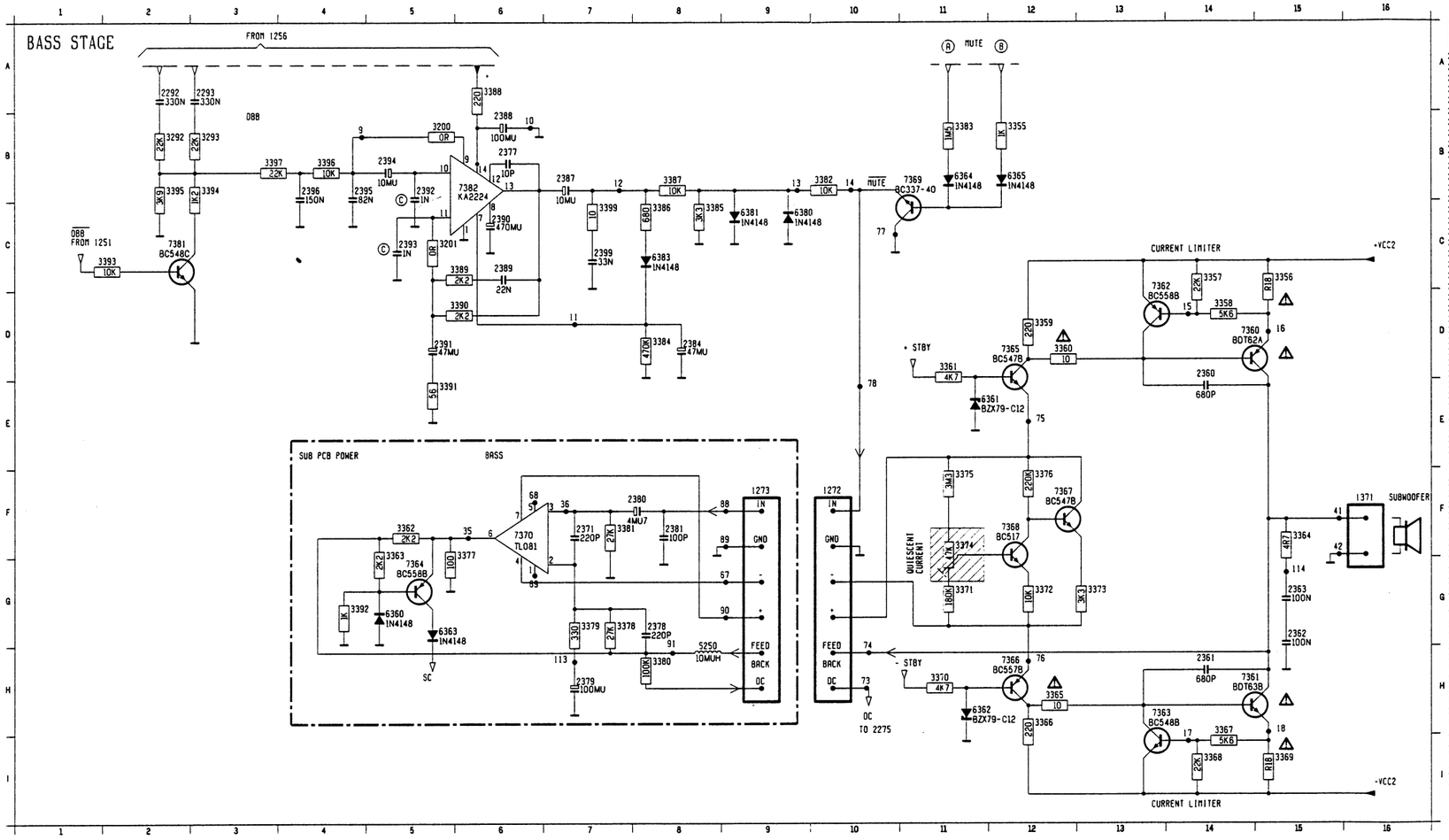

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2363	G15	6365	B12
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2381	F 8	7362	C13
2384	D 8	7363	H13
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2391	D 5	7368	F12
2392	B 5	7369	B11
2393	C 5	7370	F 6
2394	B 5	7381	C 2
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3201	C 5		
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3293	B 3		
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3358	D14		
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3395	B 2		
3396	B 4		

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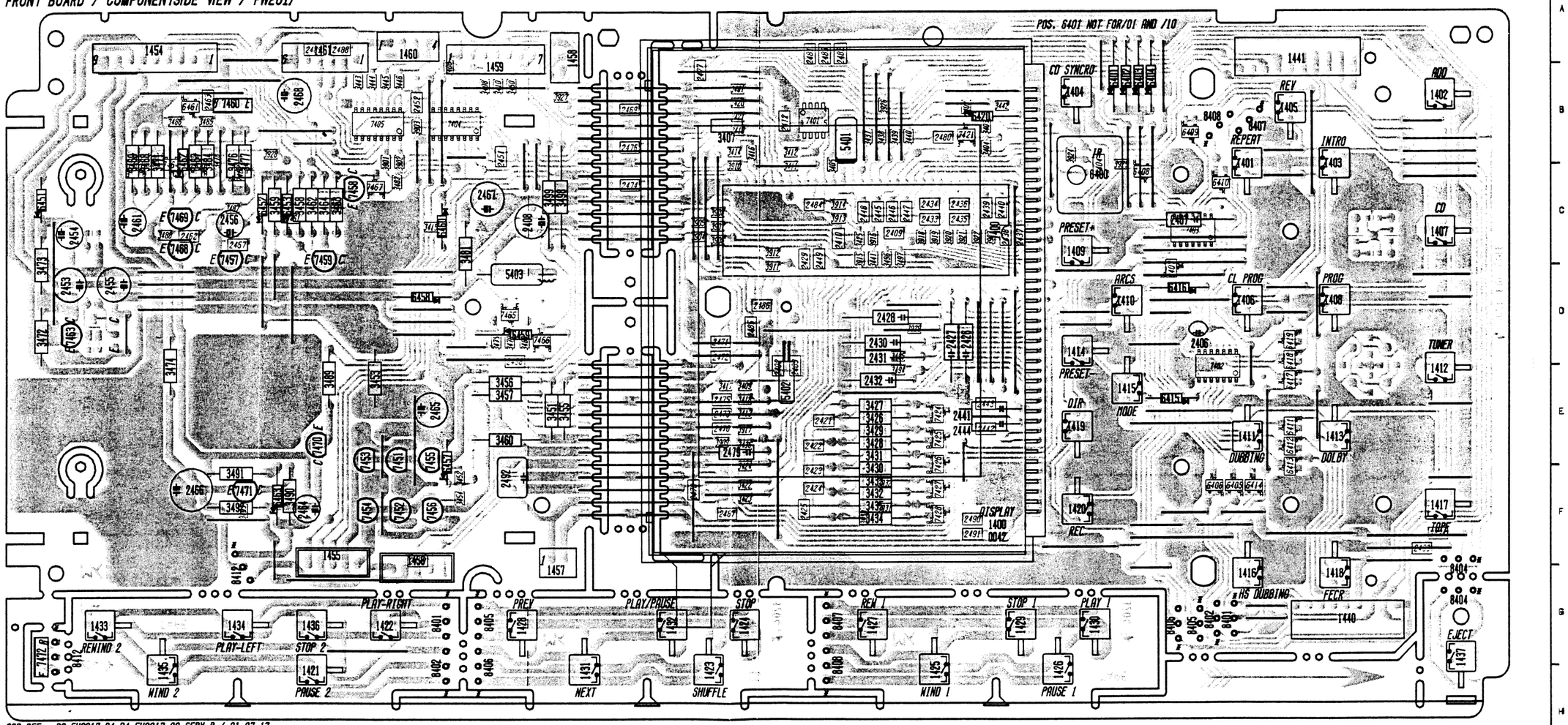
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

FRONT BOARD / COMPONENTSIDE VIEW / FW2017



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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

FRONT SUPPLY PART

A relatively costly short-circuit-proof stabilising circuit is used here.

Starting point: STAND BY
The transistors 7464 and 7461 are functioning as a "starting" circuit. The STBY line is high. Transistor 7464 is conducting, so TS7461 is blocking. The elco 2461 is discharged via R3469 and R3471.

Switching on
If the unit is now put into operation, the STBY line goes to low. Transistor 7464 blocks, causing TS7461 to switch through (emitter becomes high). Elco 2461 is charged via R3471. During the charging process a voltage drop arises at R3471. Consequently, the emitter of TS7462 becomes high. D6461 prevents reverse current via the +14V. Via potential divider R3486/R3485+R3484 a base voltage arises which is more negative than the emitter voltage. TS7462 conducts, causing TS7468 and TS7460 to also conduct. At the collector of TS7460 a positive voltage builds up. This reaches the emitter of TS7462 via D6461 and R3484 and is limited by D6462 to 4.7V. The base voltage is derived via the potential divider R3486/R3485. The circuit remains active if C2461 has been charged.

Regulation
If the +14V drops, then the voltage at the base of TS7462 will also drop. As the emitter has been stabilised at 4.7V by D6462, the base-emitter voltage U_{BE} increases. As a result, a larger collector current flows through TS7462; the voltage at the base of TS7468 increases. Consequently, the collector current of TS7468 and thus the base current of TS7460 increase. As a result, the voltage +14V increases again.

Short-circuit protection
If the +14V are short-circuited, TS7468 receives no base current and blocks. As a result, TS7460 also blocks and switches the +14V voltage off. This voltage can only be reactivated by switching on/off.

Switching off
If the unit is switched to Stand By (STBY line becomes high), the base of TS7469 becomes high via R3467. As a result TS7469 conducts and returns the base of TS7468 to earth. This causes TS7468 to block and therefore TS7461 as well.
At the same time, TS7464 also switches through via R3466 and thus blocks TS7461. There is now no voltage at the emitter. As a result, C2461 discharges again via R3469 and R3471.

CD power supply
Transistors TS7470 and 7471 operate only as switches. The voltage of D6463 is stabilised.

SCI signal
The SCI line has a dual function. While pressing DSP[1]) Presets or Cancel a square-wave signal (clock) is transmitted for approx. 200ms. Otherwise, the line is used as Mute for the Source Selector and the output stage or as Headphone Mute.

1) Digital Sound Processing

FRONT SUPPLY PART

Hier kommt eine relativ aufwendige kurzschlußsichere Stabilisierungsschaltung zum Einsatz.

Ausgangspunkt "STAND BY"
Die Transistoren 7464 und 7461 arbeiten als "Start" Schaltung. Die Leitung STBY ist high. Der Transistor 7464 ist leitend. Dadurch sperrt TS7461. Der Elko 2461 ist über R3469 und R3471 entladen.

Einschalten
Wird nun das Gerät in Betrieb genommen, geht die Leitung STBY auf low. Transistor 7464 sperrt. Dadurch schaltet TS7461 durch (Emitter wird high). Elko 2461 wird über R3471 geladen. Während des Ladevorganges entsteht an R3471 ein Spannungsabfall. Dadurch wird der Emitter von TS7462 high. D6461 verhindert Rückstrom über die +14V. Über Spannungsteiler R3486/R3485+R3484 stellt sich eine Basisspannung ein, die negativer als die Emitterspannung ist. TS7462 leitet. Dadurch leitet auch TS7468 und TS7460. Am Kollektor von TS7460 baut sich eine positive Spannung auf. Diese gelangt über D6461 und R3484 an den Emitter von TS7462 und wird von D6462 auf 4,7V begrenzt. Die Basisspannung wird über den Spannungsteiler R3486/R3485 gewonnen. Die Schaltung bleibt aktiv, wenn C2461 aufgeladen ist.

Regelung
Sinkt die +14V, dann sinkt auch die Spannung an der Basis von TS7462. Da der Emitter durch D6462 auf 4,7V stabilisiert ist, steigt dadurch die Basis-Emitterspannung U_{BE} an. Dadurch fließt ein größerer Kollektorstrom durch TS7462; die Spannung an der Basis von TS7468 steigt. Das hat zur Folge, daß der Kollektorstrom von TS7468 und somit der Basisstrom von TS7460 steigt. Dadurch steigt die Spannung +14V wieder an.

Kurzschlußsicherung
Wird die +14V kurzgeschlossen, bekommt TS7468 keinen Basisstrom und sperrt. Dadurch sperrt auch TS7460 und schaltet die Spannung +14V ab. Diese Spannung kann nur durch aus/einschalten wieder aktiviert werden.

Abschalten
Schaltet man das Gerät auf Stand By (Leitung STBY wird high), so wird über R3467 die Basis von TS7469 high. Dadurch leitet TS7469 und legt die Basis von TS7468 auf Masse. Das hat zur Folge, daß TS7468 und dadurch auch TS7460 sperrt.
Gleichzeitig schaltet über R3466 auch TS7464 durch und sperrt dadurch TS7461. Am Emitter liegt nun keine Spannung. Dadurch entlädt sich C2461 wieder über R3469 und R3471.

CD Versorgung
Die Transistoren TS7470 und 7471 arbeiten nur als Schalter. Stabilisiert wird die Spannung von D6463.

SCI Signal
Die SCI Leitung hat eine Doppelfunktion. Während des Drückens von DSP[1]-Presets oder Cancel wird für ca. 200ms ein Rechtecksignal(Clock) gesendet. Ansonsten wird die Leitung als Mute für den Source Selector und die Endstufe bzw. als Headphone Mute verwendet.

[1] Digital Sound Processing

PARTIE ALIMENTATION AVANT

Cette section est équipée d'un circuit relativement complexe de stabilisation, à l'épreuve des courts-circuits.

Point de départ "STAND BY"
Les transistors 7464 et 7461 jouent le rôle de circuit de mise en marche. Le conducteur STBY est au niveau haut. Le transistor 7464 conduit, de sorte que TS7361 bloque. Le condensateur électrolytique 2461 se décharge via R3469 et R3471.

Mise en circuit
Lorsqu'on met l'appareil en marche, le conducteur STBY passe au niveau bas. Le transistor 7464 bloque. En conséquence, TS7461 connecte (l'émetteur passe au niveau haut). Le condensateur électrolytique 2461 se charge via R3471. Pendant le processus de charge , une baisse de tension se produit en R3471, de sorte que l'émetteur de TS7462 passe au niveau haut. D7571 empêche le retour de courant par la + 14 V. Une tension de base plus négative que la tension à l'émetteur s'établit au diviseur de tension R3486/R3485+R3484. TS6462 conduit, de sorte que TS7468 et TS7460 conduisent également. Une tension positive s'établit au collecteur de TS8460. Elle parvient via D6461 et R3484 à l'émetteur de TS6462 et est limitée à 4,7 V par D6462. La tension de base est fournie via le diviseur de tension R3486/R3485. Le circuit reste actif pendant la charge de C2461.

Régulation
Si la + 14 V s'abaisse, la tension à la base de TS7462 s'abaisse également. Etant donné que l'émetteur est stabilisé à 4,7 V par D6462, la tension base-émetteur, U_{BE}, augmente. En conséquence, TS7462 est traversé par un courant de collecteur plus intense et la tension à la base de TS7468 augmente, de sorte que le courant au collecteur de TS7468 augmente, de même que par suite le courant de base de TS7460. En conséquence, la tension + 14 V remonte.

Protection contre les courts-circuits
Si la tension de + 14 V se trouve en court-circuit, TS7468 ne reçoit plus de courant de base et il bloque. Par suite, TS7460 bloque également et coupe la tension + 14 V. Celle-ci ne peut être réactivée que par mise en ou hors circuit de l'appareil.

Interruption
Si on met l'appareil en état de veille (le conducteur STBY passe au niveau haut), la base de TS7469 passe au niveau haut via R3467. Par suite, TS7469 conduit et met la base de TS7468 à la masse. Par voie de conséquence, TS7468 bloque, de même que TS7460.
Simultanément, TS7464 connecte également par R3466, de sorte que TS7461 bloque. Il n'y maintenant plus de tension à l'émetteur. C2461 se recharge donc via R3469 et R3471.

Alimentation CD
Les transistors TS7470 et 7471 ne servent que de commutateurs. La tension est stabilisée par D6463.

Signal SCI
Le conducteur SCI a une double fonction. Pendant l'appui sur les touches de préréglage ou d'annulation du DSP[1)], un signal rectangulaire (horloge) est émis pendant environ 200 ms. Autrement, le conducteur sert pour la sourdine du sélecteur de source et de l'étage de sortie ou du casque d'écoute.

[1)] Digital Sound Processing

FRONT SUPPLY PART

Hierin wordt een vrij gecompliceerde, tegen kortsluiting beveiligde stabilisatieschakeling gebruikt.

Uitgangspunt "STAND BY"
De transistors 7464 en 7461 werken als "Start" schakeling. De leiding STBY is HIGH. Transistor 7464 is geleidend. Daardoor spert TS7461. Elco 2461 is via R3469 en R3471 ontladen.

Inschakelen
Indien het apparaat nu in gebruik genomen wordt, gaat leiding STBY naar LOW. Transistor 7464 spert. Daardoor schakelt TS7461 door (emitter wordt HIGH). Elco 2461 wordt via R3471 opgeladen. Tijdens het opladen ontstaat aan R3471 een spanningsval. Daardoort wordt de emitter van TS7462 HIGH. D6461 voorkomt keerstroom via de +14V. Via spanningsdeler R3486 / R3485 + R3484 wordt een basisspanning ingesteld, die meer negatief is dan de emitterspanning. TS7462 geleidt. Daardoor geleiden tevens TS7468 en TS7460. Aan de collector van TS7460 wordt een positieve spanning opgebouwd. Deze komt via D6461 en R3484 aan de emitter van TS7462 en wordt door D6462 op 4,7V begrensd. De basisspanning wordt verkregen via de spanningsdeler R3486 / R3485. De schakeling blijft actief wanneer C2461 opgeladen is.

Stabilisatie
Indien de +14V daalt, daalt tevens de spanning op de basis van TS7462. Daar de emitter door D6462 op 4,7V gestabiliseerd is, stijgt daardoor de basis-emitterspanning U_{BE}. Daardoor loopt er een hogere collectorstroom door TS7462; de spanning op de basis van TS7468 stijgt. Dit heeft tot gevolg dat de collectorstroom van TS7468 en derhalve ook de basisstroom van TS7460 stijgt. Daardoor gaat de spanning +14V weer omhoog.

Beveiliging tegen kortsluiting
Indien de +14V wordt kortgesloten, krijgt TS7468 geen basisstroom en spert. Daardoor spert tevens TS7460 en wordt de spanning +14V uitgeschakeld. Deze spanning kan alleen door uit/in-schakelen opnieuw worden geactiveerd.

Uitschakelen
Wanneer het apparaat op Stand By wordt geschakeld (leiding STBY wordt HIGH), wordt via R3467 de basis van TS7469 HIGH. Daardoor geleidt TS7469 en legt de basis van TS7468 aan massa. Dit heeft tot gevolg dat TS7468, en daardoor tevens TS7460, spert.
Tegelijkertijd schakelt via R3466 tevens TS7464 door en spert daardoor TS7461. Er ligt nu geen spanning aan de emitter. Daardoor wordt C2461 weer ontladen via R3469 en R3471.

CD voeding
De transistors TS7470 en 7471 werken alleen als schakelaar. De spanning van D6463 wordt gestabiliseerd.

SCI signaal
De SCI leiding heeft een dubbele functie. Tijdens het indrukken van DSP[1]-Preset of Cancel wordt gedurende ca. 200 ms een bloksignaal (Clock) geleverd. In alle andere gevallen wordt de leiding als Mute voor de Source Selector en de eindtrap resp. als Headphone Mute gebruikt.

[1] Digital Sound Processing

SEZIONE DI ALIMENTAZIONE ANTERIORE

E' qui utilizzato un circuito stabilizzatore relativamente dispendioso e protetto dai cortocircuiti.

Punto di uscita "STAND BY"
I transistor 7464 e 7461 fungono da comando "Start". La linea STBY è a livello alto. Il transistor 7464 è attivato e in tal modo blocca il TS7461. Il condensatore elettroliticoo 2461 viene scaricato attraverso l'R3469 e R3471.

Accensione
Quando la macchina viene accesa, la linea STBY passa a livello basso. Il transistor 7464 si blocca. In tal modo si attiva il TS7461 (l'emittitore va a livello alto). Il condensatore elettrolitico 2461 viene caricato dall'R3471. Durante il processo di carica si ha una caduta di tensione in corrispondenza dell'R3471. In tal modo l'emettitore di TS7462 passa a livello alto. D6461 impedisce il passaggio di una corrente inversa attraverso +14V. Attraverso il ripartitore di tensione R3486/R3485+R3484, si ottiene una tensione di base, che è più negativa di quella dell'emettitore. TS7462 si attiva. Si attivano così anche TS7468 e TS7460. In corrispondenza del collettore di TS7460, si presenta una tensione positiva, la quale perviene all'emettitore TS7462 attraverso D6461 e R3484 e viene limitata a 4,7V da D6462. La tensione di base si ottiene attraverso il ripartitore di tensione R3486/R3485. Mentre C2461 viene caricato, il ciruito rimane attivo.

Regolazione
Se i +14V calano, cala anche la tensione in corrispondenza della base di TS7462. Poiché l'emettitore viene stabilizzato su 4,7V attraverso D6462, aumenta in tal modo la tensione dell'emettitore di base U_{BE}. In tal modo, fluisce attraverso TS7462 una corrente di collettore maggiore; la tensione sulla base del TS7-468 aumenta. Di conseguenza aumenta la corrente del collettore di TS7468 e, insieme, la corrente base di TS7460. La tensione +14 V aumenta così nuovamente.

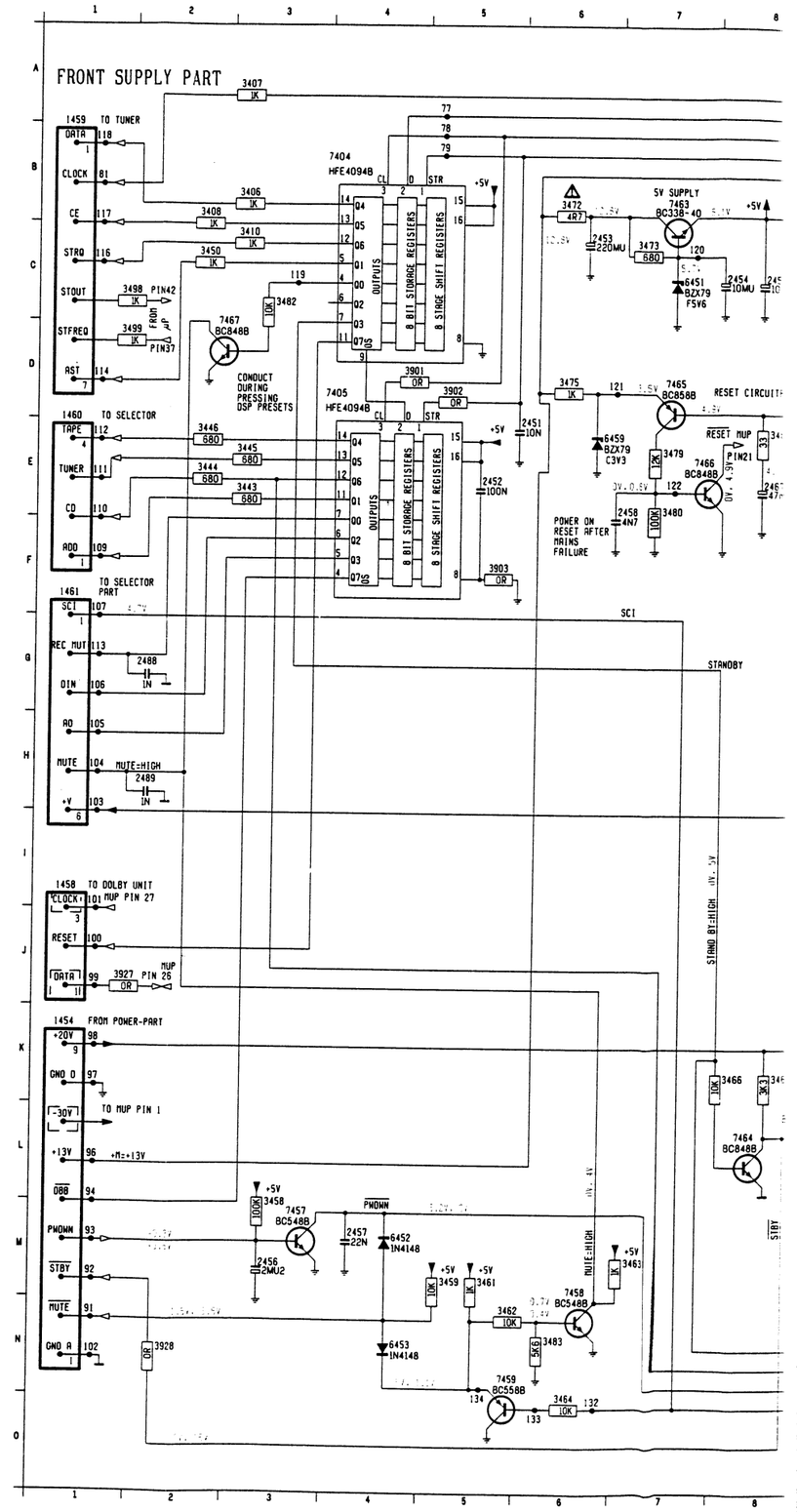
Protezione dai cortocircuiti
Se i +14V vengono cortocircuitati, TS7468 non viene alimentato da nessuna corrente di base e si arresta. Si arresta così anche TS7460 e la tensione +14V viene interrotta. Quest'ultima può essere riattivata solo spegnendo e riaccendendo la macchina.

Spegnimento
Quando l'apparecchio passa in Stand-By (la linea STBY passa a livello alto), la base di TS7469 passa a livello alto attraverso l'R3467. In tal modo, TS7469 si attiva e mette a massa la base del TS7468. Di conseguenza il TS7468 e, anche il TS7460, si bloccano.
Contemporaneamente, attraverso l'R3466 si attiva anche il TS7464, bloccando così il TS7461. Ora, l'emettitore non è sotto tensione. In tal modo C2461 si scarica nuovamente attraverso R3469 e R3471.

Alimentazione CD
I transistor TS7470 e 7471 funzionano solo da interruttori. La tensione di D6463 viene stabilizzata.

Segnale SCI
Il segnale SCI ha una duplice funzione. Quando si preme DSP[1]-Presets oppure Cancel, viene trasmesso, per circa 200ms, un segnale di clock rettangolare. Altrimenti la linea viene impiegata come esclusione per il Source Selector e lo stadio di uscita o come esclusione cuffie.

[1] Digital Sound Processing



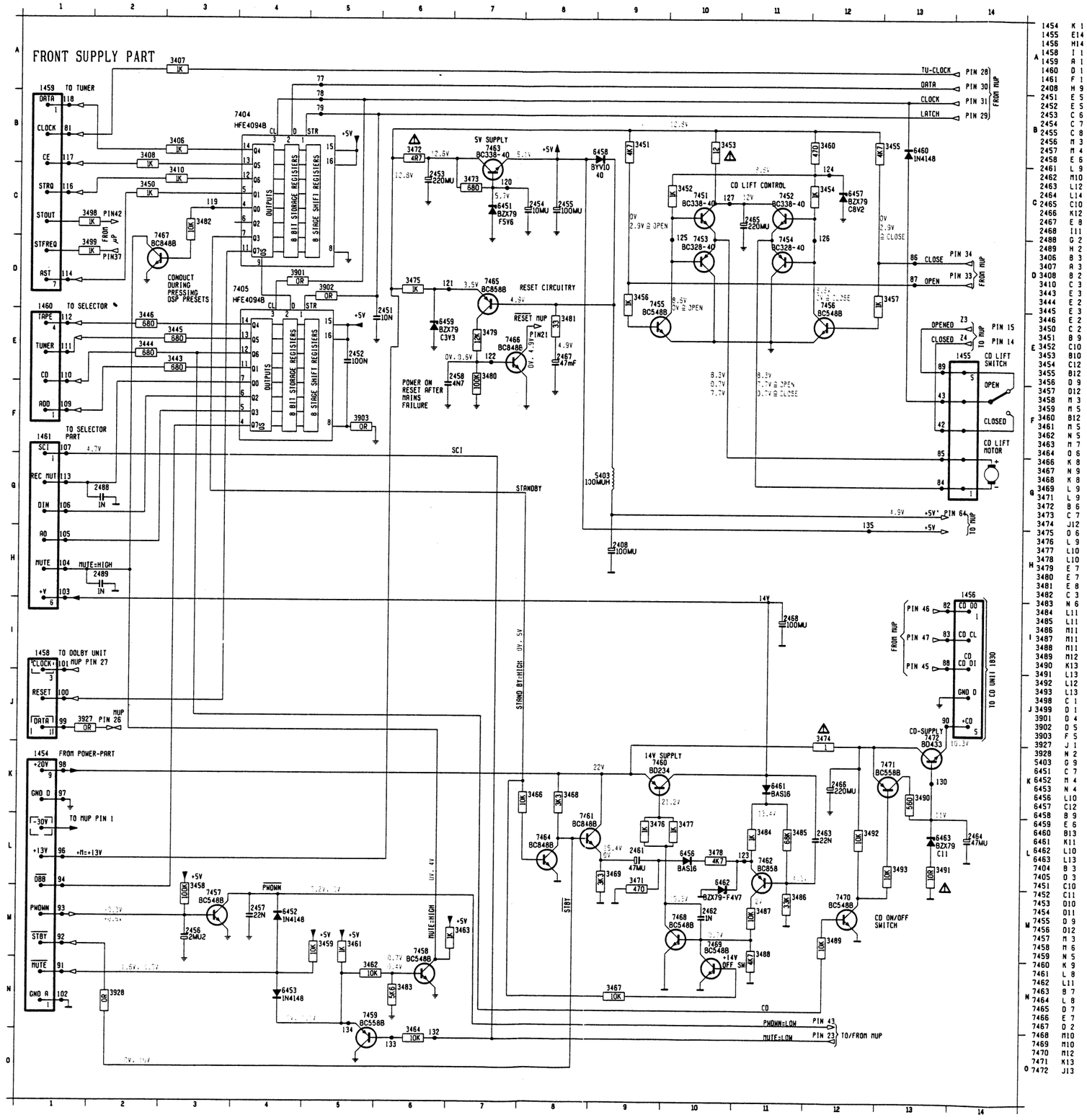
TS7468 non viene
base e si arresta.
la tensione +14V
ssere riattivata solo
china.

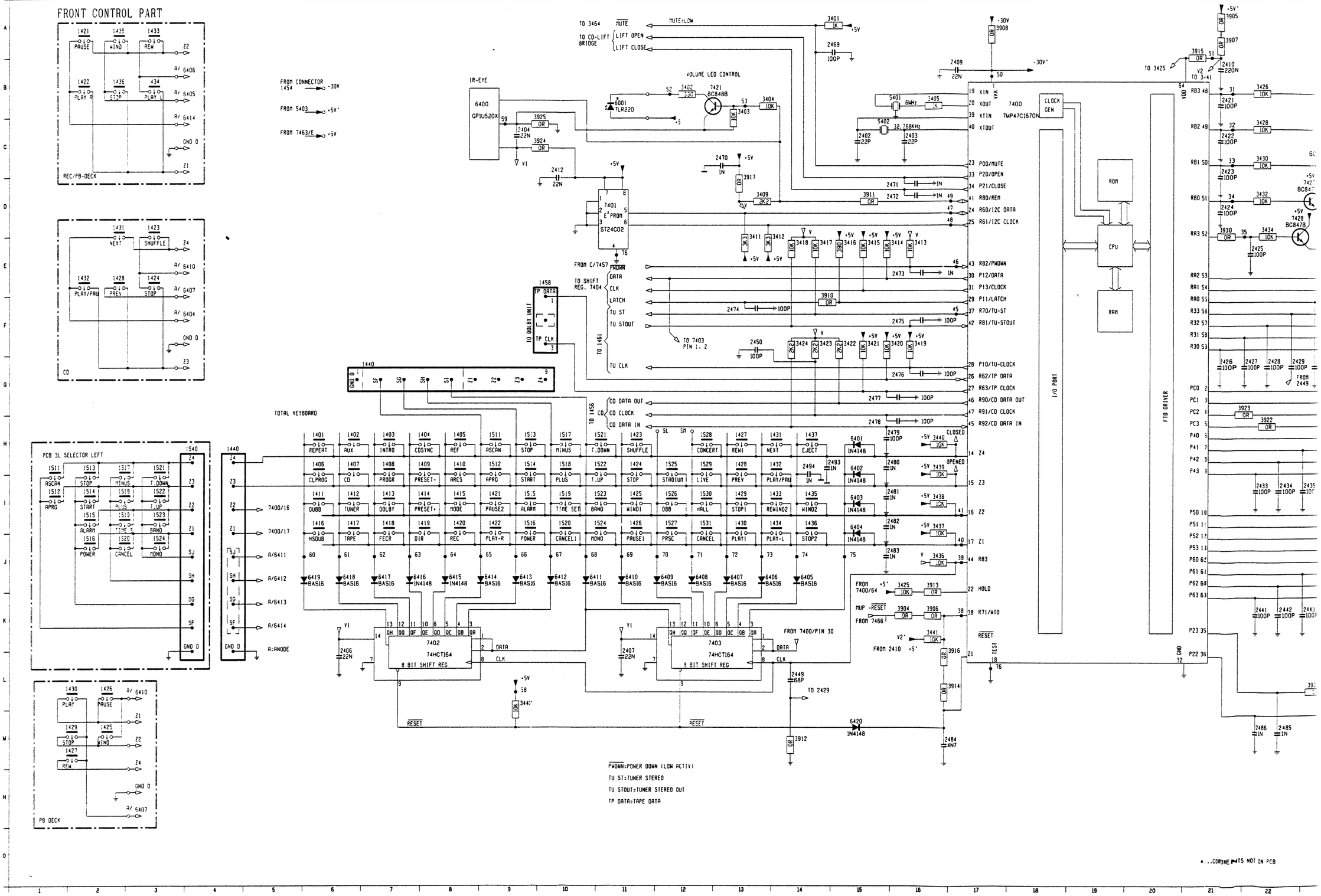
Stand-By (la linea
di TS7469 passa a
modo, TS7469 si
del TS7468. Di
TS7460, si bloc-

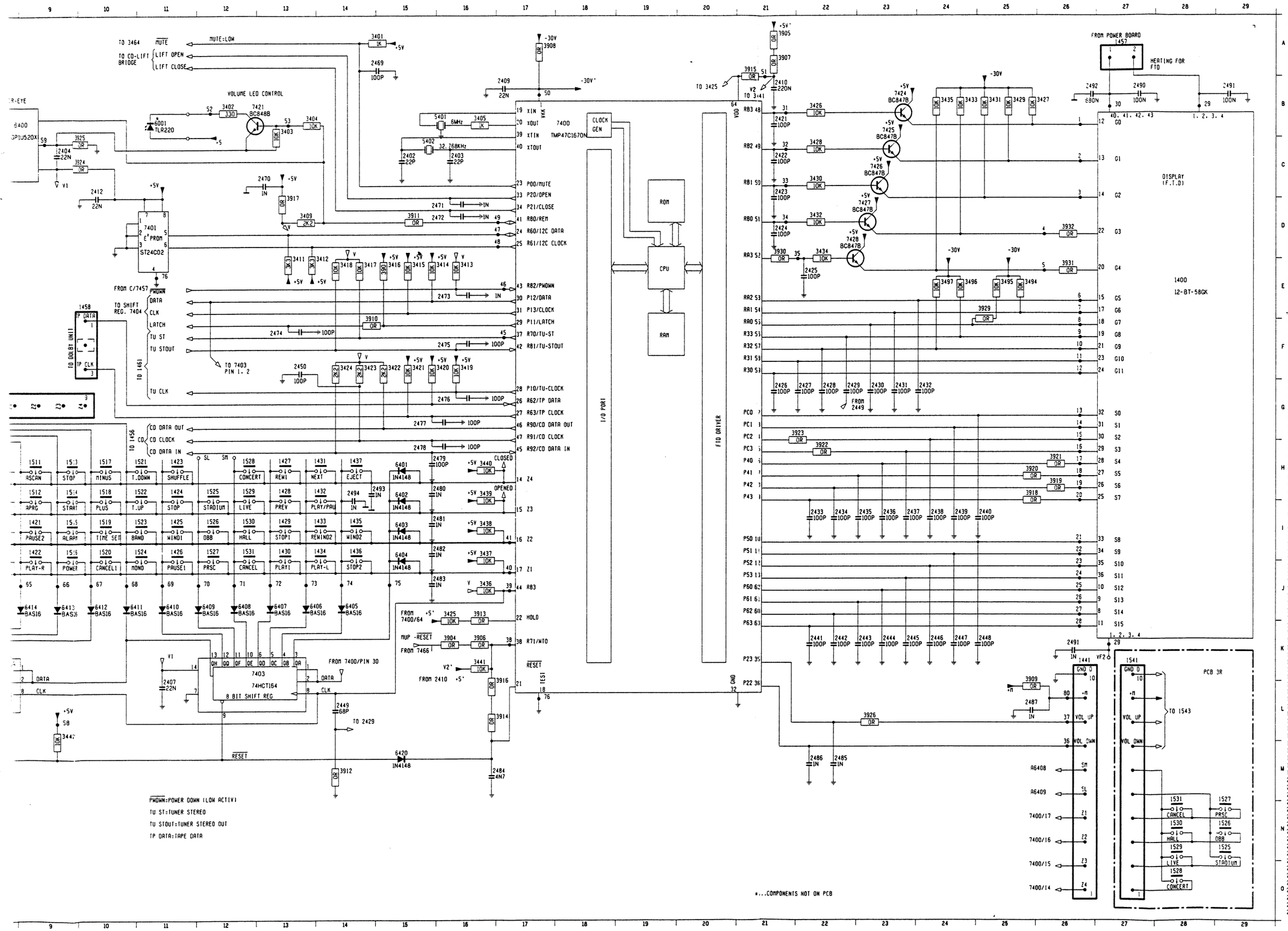
l'R3466 si attiva
il TS7461. Ora,
tal modo C2461
3469 e R3471.

ano solo da inter-
stabilizzata.

zione. Quando si
, viene trasmesso,
lock rettangolare.
come esclusione
di uscita o come




FRONT CONTROL PART
REC/PB-DECK
CD
PCB 3L SELECTOR LEFT
PB DECK
FROM CONNECTOR 1454 → -30V
FROM 5403 → +5V'
FROM 7463/E → +5V
IR-EYE
6400
GP1U520X
VOLUME LED CONTROL
6001 TLR220
7421 8C848B
TO 3464 MUTE
TO CD-LIFT BRIDGE
LIFT OPEN
LIFT CLOSE
MUTE=LOW
7400 TMP47C1670N
6MHz
32.768KHz
CLOCK GEN
ROM
CPU
RAM
I/O PORT
FTD DRIVER
7401 E²PROM ST24C02
FROM C/7457 PWDWN
TO SHIFT REG. 7404
DATA
CLK
LATCH
TU ST
TU STOUT
TU CLK
TO 1461
TO 7403 PIN 1, 2
IO DOLBY UNIT
TP DATA
TP CLK
TOTAL KEYBOARD
CD DATA OUT
CD CLOCK
CD DATA IN
TO 1456 CD
7402 74HCT164 8 BIT SHIFT REG
7403 74HCT164 8 BIT SHIFT REG
DATA
CLK
RESET
FROM 7400/PIN 30
TO 2429
FROM 7466 RESET
FROM 2410 +5'
FROM 7400/64 +5'
HOLD
R71/WTO
RESET
TEST
CLOSED
OPENED
7400/16
7400/17
A/6411
A/6412
A/6413
A/6414
A:ANODE
PWDWN:POWER DOWN (LOW ACTIV)
TU ST:TUNER STEREO
TU STOUT:TUNER STEREO OUT
TP DATA:TAPE DATA
* ...COMPONENTS NOT ON PCB



	1400	E28	2432	P23	6406	J13
	1401	H 6	2433	I22	6407	J13
	1402	H 6	2434	I22	6408	J12
A	1403	H 7	2435	I22	6409	J12
	1404	H 7	2436	I23	6410	J11
	1405	H 8	2437	I23	6411	J10
	1406	H 6	2438	I24	6412	J10
	1407	H 6	2439	I24	6413	J 9
	1408	H 7	2440	I24	6414	J 9
	1409	H 7	2441	K22	6415	J 8
	1410	H 8	2442	K22	6416	J 7
	1411	I 6	2443	K22	6417	J 7
B	1412	I 6	2444	K23	6418	J 6
	1413	I 7	2445	K23	6419	J 6
	1414	I 7	2446	K24	6420	M15
	1415	I 8	2447	K24	7400	B17
	1416	I 6	2448	K24	7401	D11
	1417	I 6	2449	L14	7402	K 8
	1418	I 7	2450	F13	7403	M12
	1419	I 7	2469	A15	7421	B13
C	1420	I 8	2470	C13	7424	B23
	1421	I 9	2471	D16	7425	B23
	1421	A 2	2472	D16	7426	C23
	1422	I 9	2473	E16	7427	D23
	1422	B 2	2474	F13	7428	D22
	1423	H11	2475	F16		
	1423	D 3	2476	G16		
	1424	H11	2477	G15		
D	1424	E 3	2478	H15		
	1425	I11	2479	H15		
	1425	M 2	2480	H15		
	1426	I11	2481	I15		
	1426	L 2	2482	I15		
	1427	H13	2483	J15		
	1427	M 1	2484	M16		
	1428	H13	2485	M22		
E	1428	E 2	2486	M22		
	1429	I13	2487	L25		
	1429	M 1	2490	B27		
	1430	I13	2491	B29		
	1430	L 1	2492	N26		
	1431	H13	2493	B26		
	1431	D 2	2493	H14		
	1432	H13	2494	H14		
F	1432	E 2	3401	A15		
	1433	I13	3402	B12		
	1433	A 3	3403	B13		
	1434	I13	3404	B13		
	1434	B 3	3405	B16		
	1435	I14	3409	D13		
	1435	A 2	3411	D13		
	1436	I14	3412	D13		
G	1436	B 2	3413	E16		
	1437	H14	3414	E15		
	1440	G 7	3415	E15		
	1440	H 4	3416	E15		
	1441	K26	3417	E14		
	1457	A27	3418	E14		
	1458	E10	3419	F16		
	1511	H 9	3420	F15		
	1511	H 1	3421	F15		
H	1512	H 9	3422	F15		
	1512	I 1	3423	F14		
	1513	H 9	3424	F14		
	1513	H 2	3425	J16		
	1514	H 9	3426	B22		
	1514	I 2	3427	B25		
	1515	I 9	3428	C22		
	1515	I 2	3429	B25		
I	1516	I 9	3430	C22		
	1516	J 2	3431	B25		
	1517	H10	3432	D22		
	1517	H 2	3433	B24		
	1518	H10	3434	D22		
	1518	I 2	3435	B24		
	1519	I10	3436	J16		
	1519	I 2	3437	I16		
J	1520	I10	3438	I16		
	1520	J 2	3439	H16		
	1521	H10	3440	H16		
	1521	H 3	3441	K16		
	1522	H10	3442	L 9		
	1522	I 3	3494	E25		
	1523	I10	3495	E25		
	1523	I 3	3496	E24		
K	1524	I10	3497	E24		
	1524	J 3	3904	K16		
	1525	H12	3905	A21		
	1525	N28	3906	K16		
	1526	I12	3907	A21		
	1526	N28	3908	A17		
	1527	I12	3909	K25		
	1527	M28	3910	E14		
L	1528	H12	3911	D15		
	1528	O28	3912	M14		
	1529	H12	3913	J16		
	1529	N28	3914	L16		
	1530	I12	3915	A21		
	1530	N28	3916	K16		
	1531	I12	3917	C13		
	1531	M28	3918	H25		
	1540	H 4	3919	H26		
M	1541	K27	3920	H25		
	2402	C15	3921	H26		
	2403	C16	3922	H22		
	2404	C 9	3923	Q22		
	2406	K 6	3924	C10		
	2407	K11	3925	B10		
	2409	B17	3926	L23		
	2410	B21	3929	E25		
N	2412	C10	3930	D21		
	2421	B21	3931	E26		
	2422	C21	3932	D26		
	2423	C21	5401	B15		
	2424	D21	5402	C15		
	2425	E22	6001	B11		
	2426	G21	6400	B 8		
	2427	G21	6401	H15		
O	2428	G22	6402	H15		
	2429	G22	6403	I15		
	2430	G23	6404	I15		
	2431	G23	6405	J14		

| | | |

VOLUME PART

FROM MF SELECTOR

1555 HP-MUTE, +V, R, GND A, L

7501 TDA1524

VOL+BAL CONTROL

BASS

TREBLE

SUPPLY

HEADPHONE AMPLIFIER

1/2 7503 NJM3415D

1/2 7503

HEADPHONE PCB

MUTE=LOW

MUTE=HIGH

7512 BC328/40

7511 BC328/40

1557

1558

1502 HEADPHONE SOCKET

0.2V (10.4V=MUTED)

TO POWER STAGE

6504 1N4148

PW MUTE

DBB

7505 BC338-40

7506 BC328-40

7507 BC338-40

7508 BC328-40

7509 BC848

7510 BC848

6501 BZX79 C5V6

PRO1

VOLUME CONTROL

( )=VOL UP/DOWN

5.3V (0.7V) (4.9V) ≙ VOL UP

5.3V (4.6V) ≙ VOL DOWN (0.7V)

1543

1542

1541

1441

SELECTOR PCB

TREBLE

BASS

BAL

TO KEYBOARD

FROM MUP-PART

PW MUTE=POWER STAGE MUTE (LOW ACTIVE)

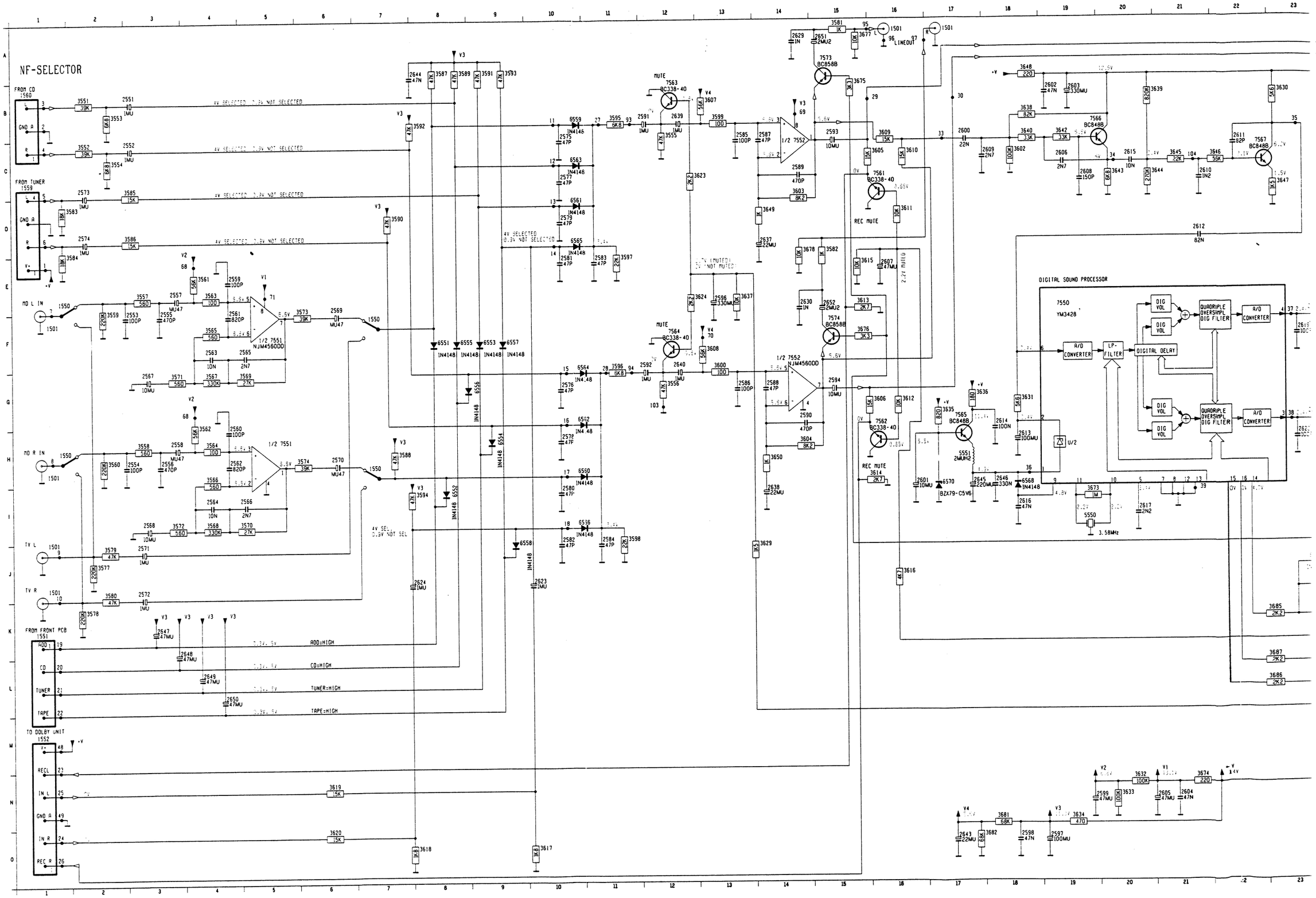
*...COMPONENTS NOT ON PCB

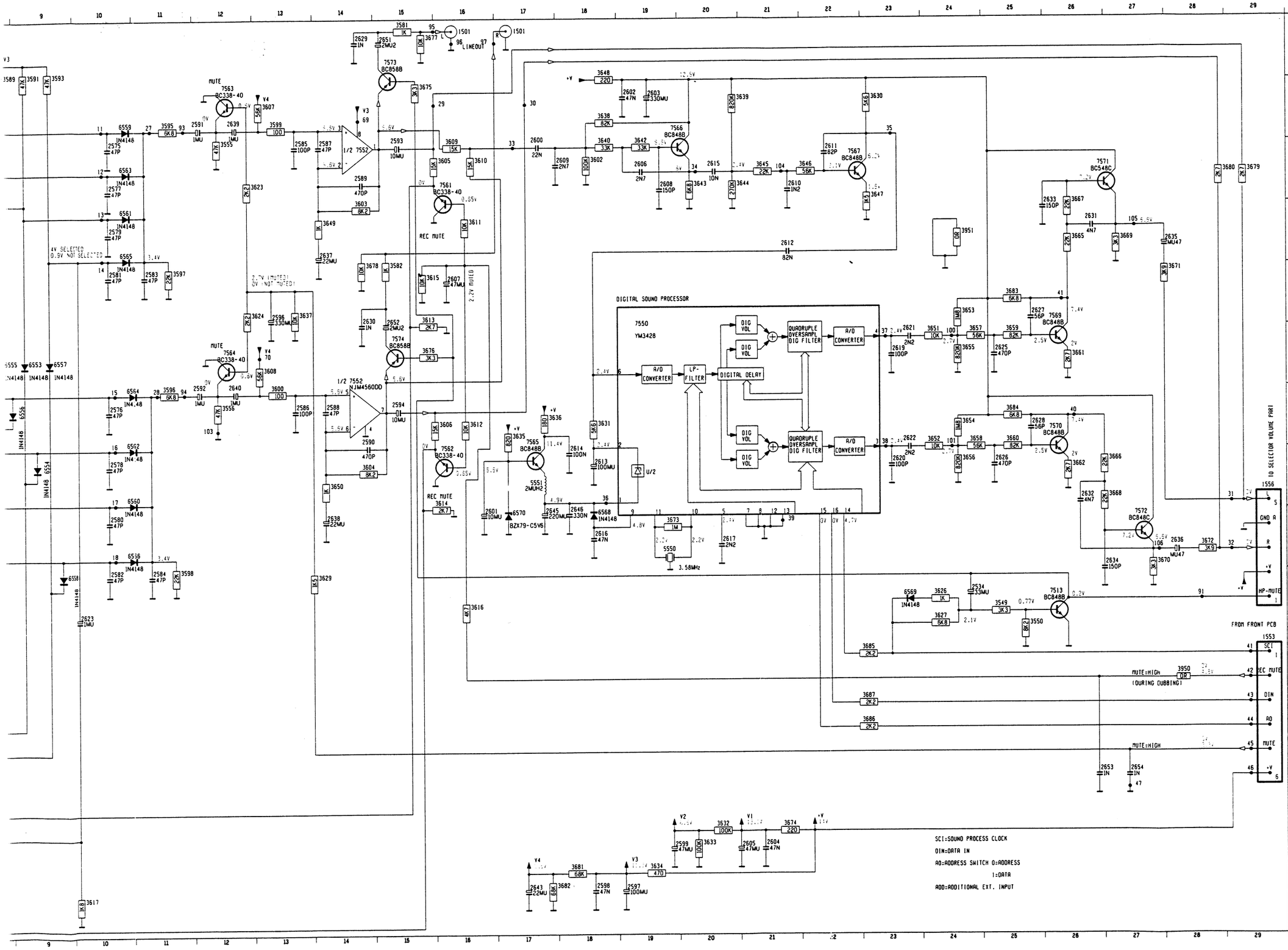
1441	M 7
1502	E21
1541	L 7
1542	J 8
1543	I 8
1554	F19
1555	C 1
1557	C16
1558	C17
2501	B 2
2502	G 5
2503	B 2
2504	G 7
2505	A 7
2506	G 7
2507	A 8
2508	G 8
2509	B 7
2510	F 7
2511	B10
2512	F10
2513	B13
2514	F13
2515	C13
2516	F13
2517	B14
2518	E14
2519	E19
2520	D19
2521	F 6
2522	F 5
2523	G 6
2524	G 6
2525	G10
2526	G10
2527	H10
2528	G15
2529	I14
2531	G11
2532	G11
2535	E19
2536	D19
3501	E19
3502	D19
3503	B 7
3504	F 7
3505	B 8
3506	F 8
3507	B 8
3508	F 8
3509	B12
3510	F12
3512	F 5
3513	B14
3514	E14
3515	E18
3516	D18
3517	K 6
3518	L 6
3519	L 5
3520	L 6
3521	L 7
3524	G11
3525	F14
3526	G14
3527	H12
3528	I12
3529	H13
3530	H14
3531	H15
3533	H15
3534	I16
3535	I16
3540	G13
3541	C 3
3542	D 4
3543	K14
3543	C 4
3543	C 3
3544	C 5
3545	B 4
3546	B16
3547	E18
3548	E19
3575	K 5
3576	L 5
6501	H13
6504	H19
6505	C 4
6506	B 4
7501	C 5
7503	C14
7505	H14
7506	I14
7507	H15
7508	I15
7509	I13
7510	I16
7511	E18
7512	D18

| | | |

| | | |

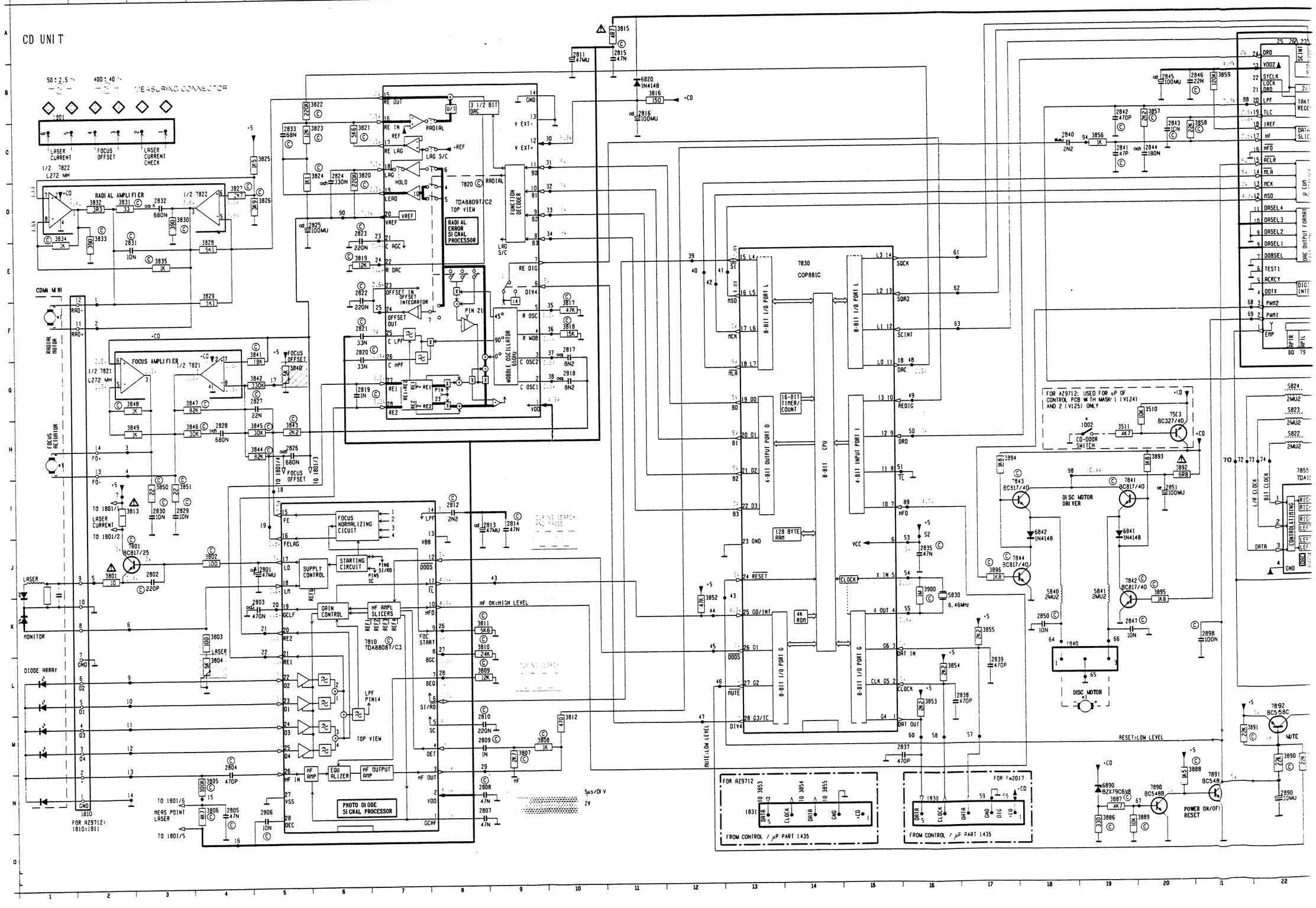
NF-SELECTOR

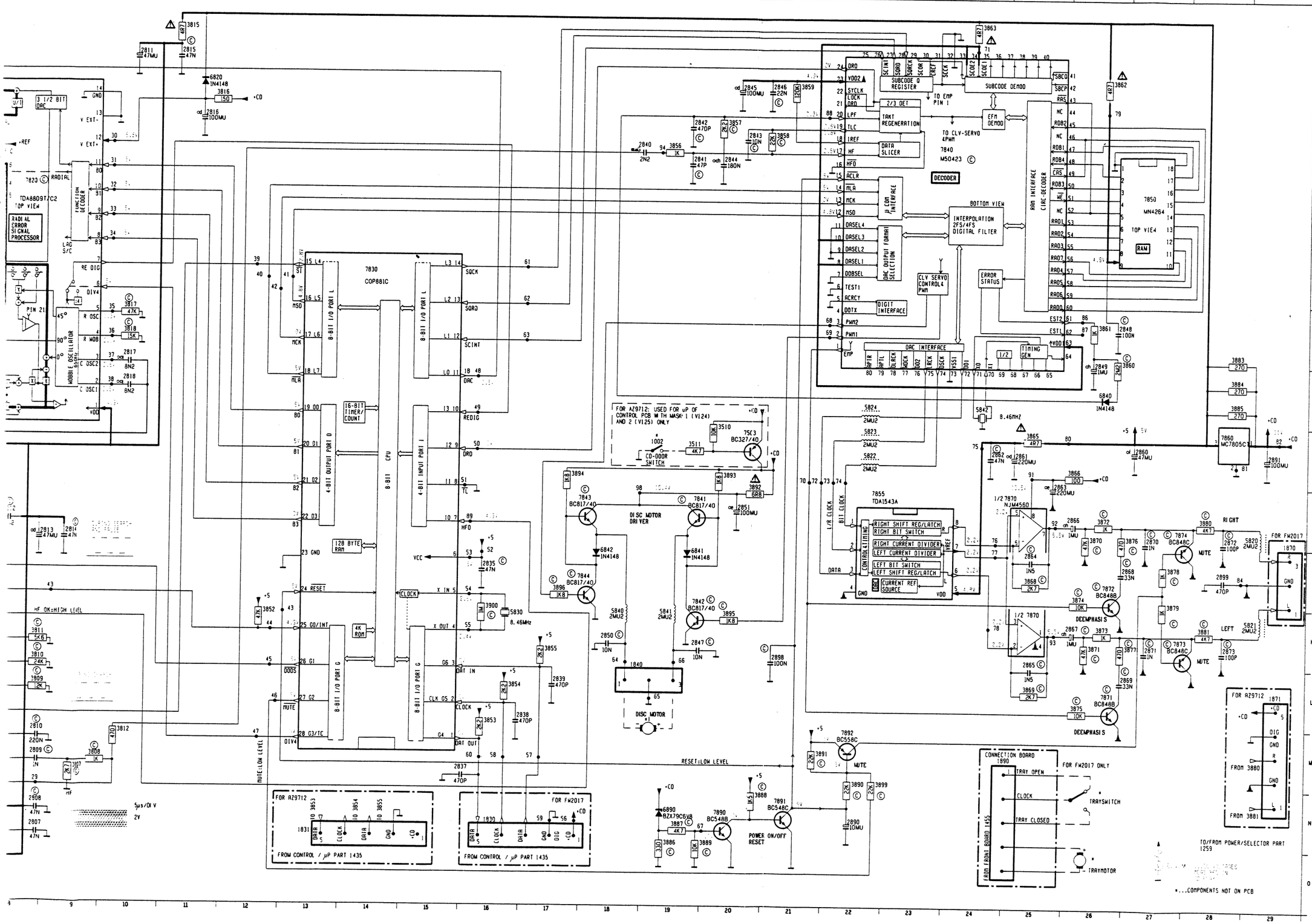

FROM CD 1560
FROM TUNER 1559
4V SELECTED 0.3V NOT SELECTED
MD L IN
MD R IN
TV L
TV R
FROM FRONT PCB 1551
ADD=HIGH
CD=HIGH
TUNER=HIGH
TAPE=HIGH
TO DOLBY UNIT 1552
MUTE
REC MUTE
1/2 7551 NJM4560DD
1/2 7552 NJM4560DD
DIGITAL SOUND PROCESSOR
7550 YM3428
A/D CONVERTER
LP-FILTER
DIGITAL DELAY
DIG VOL
QUADRIPLE OVERSIMPL DIG FILTER
3.58MHz
LINEOUT



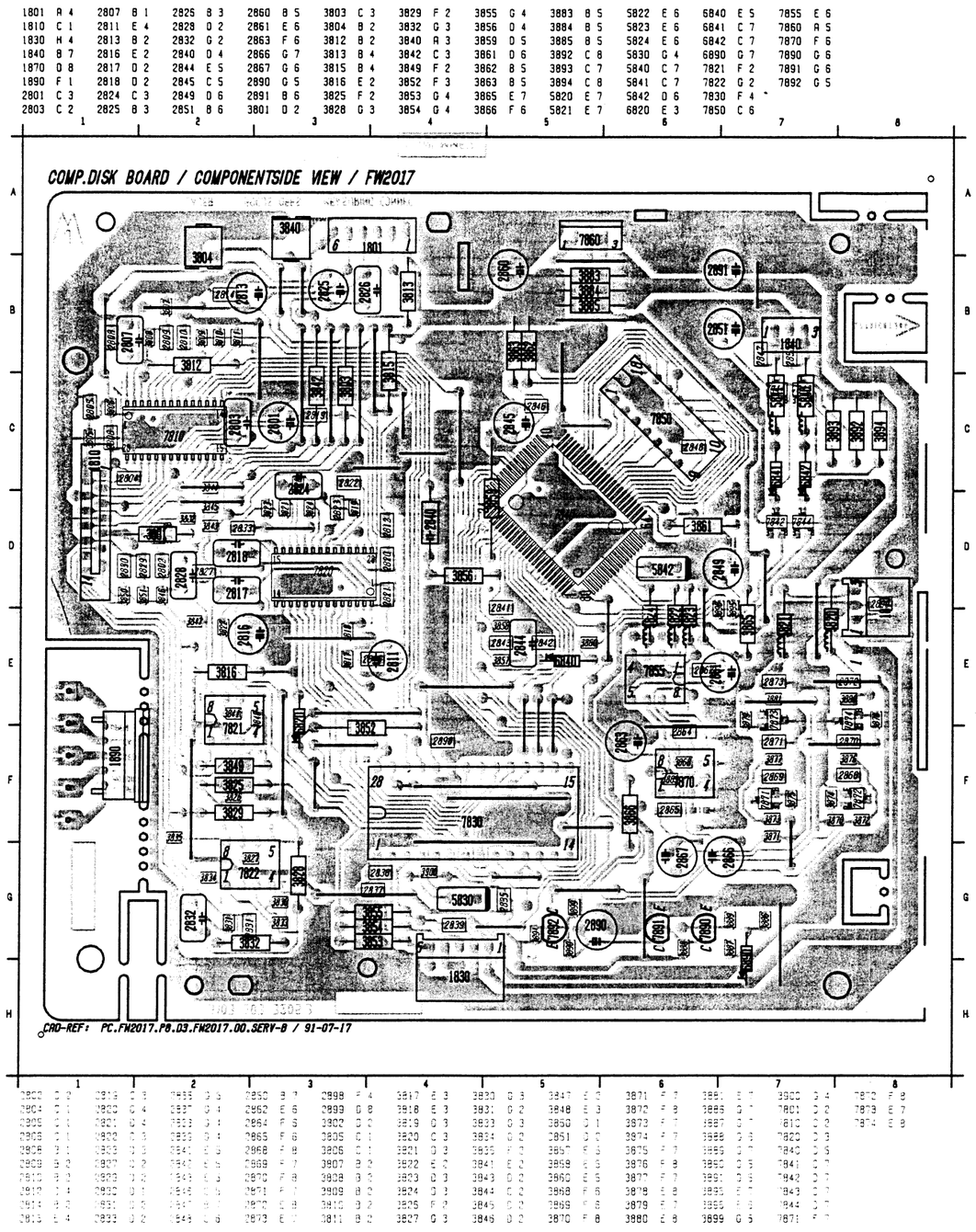
1501	F 1	3554	C 2	3686	L23	
1501	H 1	3555	B12	3687	L23	
1501	J 1	3556	G12	3950	K28	
1501	J 1	3557	E 3	3951	O24	
1501	A17	3558	H 3	5550	I19	A
1501	A16	3559	E 2	5551	H17	
1550	H 7	3560	H 2	6551	F 8	
1550	F 7	3561	E 4	6552	I 8	
1550	E 1	3562	G 4	6553	F 9	
1550	H 1	3563	E 4	6554	H 9	
1551	K 1	3564	H 4	6555	F 8	
1552	M 1	3565	F 4	6556	G 9	
1553	K29	3566	H 4	6557	F 9	B
1556	H29	3567	G 4	6558	J 9	
1559	C 1	3568	I 4	6559	B10	
1560	B 1	3569	G 5	6560	H11	
2534	J24	3570	I 5	6561	D10	
2551	B 3	3571	G 3	6562	G11	
2552	C 3	3572	I 3	6563	C10	
2553	E 2	3573	E 6	6564	F11	
2554	H 2	3574	H 6	6565	D10	C
2555	E 3	3577	J 2	6566	I11	
2556	H 3	3578	K 2	6568	I10	
2557	E 3	3579	J 2	6569	J23	
2558	H 3	3580	J 2	6570	I17	
2559	E 4	3581	A15	7513	J26	
2560	G 4	3582	D15	7550	E19	
2561	E 4	3583	D 1	7551	F 5	
2562	H 4	3584	D 1	7552	F14	D
2563	F 4	3585	C 3	7561	C16	
2564	I 4	3586	D 3	7562	G16	
2565	F 5	3587	A 8	7563	B12	
2566	I 5	3588	H 7	7564	F12	
2567	G 3	3589	A 8	7565	G17	
2568	I 3	3590	D 7	7566	B20	
2569	E 6	3591	A 9	7567	C22	
2570	H 6	3592	B 7	7569	E26	E
2571	J 3	3593	A 9	7570	G26	
2572	J 3	3594	I 7	7571	C27	
2573	C 2	3595	B11	7572	I27	
2574	D 2	3596	F11	7573	A15	
2575	B10	3597	E11	7574	F15	
2576	G10	3598	I11			
2577	C10	3599	B13			
2578	H10	3600	F13			F
2579	D10	3602	C18			
2580	I10	3603	C14			
2581	E10	3604	H14			
2582	I10	3605	C15			
2583	E11	3606	G15			
2584	I11	3607	B13			
2585	B13	3608	F13			
2586	G13	3609	B16			G
2587	B14	3610	C16			
2588	G14	3611	D16			
2589	C14	3612	G16			
2590	G14	3613	E15			
2591	B12	3614	H16			
2592	F12	3615	E15			
2593	B15	3616	J16			
2594	G15	3617	Q10			
2596	E13	3618	Q 7			H
2597	Q19	3619	N 6			
2598	Q18	3620	Q 6			
2599	N19	3623	C12			
2600	B17	3624	E12			
2601	I16	3626	J24			
2602	B19	3627	J24			
2603	B19	3629	J13			
2604	N21	3630	B23			I
2605	N20	3631	G18			
2606	C19	3632	N20			
2607	E16	3633	N20			
2608	C19	3634	N19			
2609	C17	3635	G17			
2610	C21	3636	G17			
2611	C22	3637	E13			
2612	D21	3638	B18			J
2613	H18	3639	B20			
2614	G18	3640	B18			
2615	C20	3642	B19			
2616	I18	3643	C20			
2617	I20	3644	C20			
2619	F23	3645	C21			
2620	H23	3646	C22			
2621	F23	3647	C23			K
2622	G23	3648	A18			
2623	J10	3649	D14			
2624	J 7	3650	H14			
2625	F25	3651	F24			
2626	H25	3652	G24			
2627	E25	3653	E24			
2628	G25	3654	G24			
2629	A14	3655	F24			L
2630	E14	3656	H24			
2631	D26	3657	F24			
2632	H26	3658	G24			
2633	C25	3659	F25			
2634	I26	3660	G25			
2635	D27	3661	F26			
2636	I28	3662	H26			
2637	D14	3665	D26			
2638	I14	3666	H26			M
2639	B12	3667	C26			
2640	F12	3668	H26			
2643	D17	3669	D27			
2644	A 7	3670	I27			
2645	I17	3671	E27			
2646	H18	3672	I28			
2647	K 3	3673	I19			
2648	K 3	3674	N21			N
2649	L 4	3675	B15			
2650	L 4	3676	F15			
2651	A15	3677	A15			
2652	E15	3678	D14			
2653	M26	3679	C29			
2654	M27	3680	C28			
3549	J25	3681	N18			
3550	J25	3682	D17			O
3551	B 2	3683	E25			
3552	C 2	3684	G25			
3553	B 2	3685	K23			

CD UNIT


MEASURING CONNECTOR
LASER CURRENT
FOCUS OFFSET
LASER CURRENT CHECK
RADIAL AMPLIFIER
FOCUS AMPLIFIER
RADIAL MOTOR
FOCUS ACTUATOR
LASER
MONITOR
DIODE ARRAY
FOR AZ9712: 1810:1811
TO 1801/6
MEAS POINT LASER
TO 1801/5
TO 1801/4
TO 1801/3
TO 1801/2
TO 1801/1
FOCUS NORMALIZING CIRCUIT
SUPPLY CONTROL
STARTING CIRCUIT
GAIN CONTROL
HF AMPL SLICERS
HF AMP
EQUALIZER
HF OUTPUT AMP
PHOTO DIODE SIGNAL PROCESSOR
TOP VIEW
3 1/2 BIT DAC
TDA8809T/C2
RADIAL ERROR SIGNAL PROCESSOR
FUNCTION DECODER
OFFSET INTEGRATOR
WOBBLE OSCILLATOR
LPF PIN14
HF OK=HIGH LEVEL
7830 COP881C
8-BIT I/O PORT L
8-BIT I/O PORT G
4-BIT OUTPUT PORT D
4-BIT INPUT PORT I
16-BIT TIMER/ COUNT
8-BIT CPU
128 BYTE RAM
4K ROM
8.46MHz
DISC MOTOR DRIVER
MUTE
POWER ON/OFF RESET
RESET=LOW LEVEL
MUTE=LOW LEVEL
FOR AZ9712: USED FOR µP OF CONTROL PCB WITH MASK 1 (V124) AND 2 (V125) ONLY
CD-DOOR SWITCH
FOR AZ9712
FOR F=2017
FROM CONTROL / µP PART 1435
DISC OUTPUT FORMAT
µ CONTROLLER



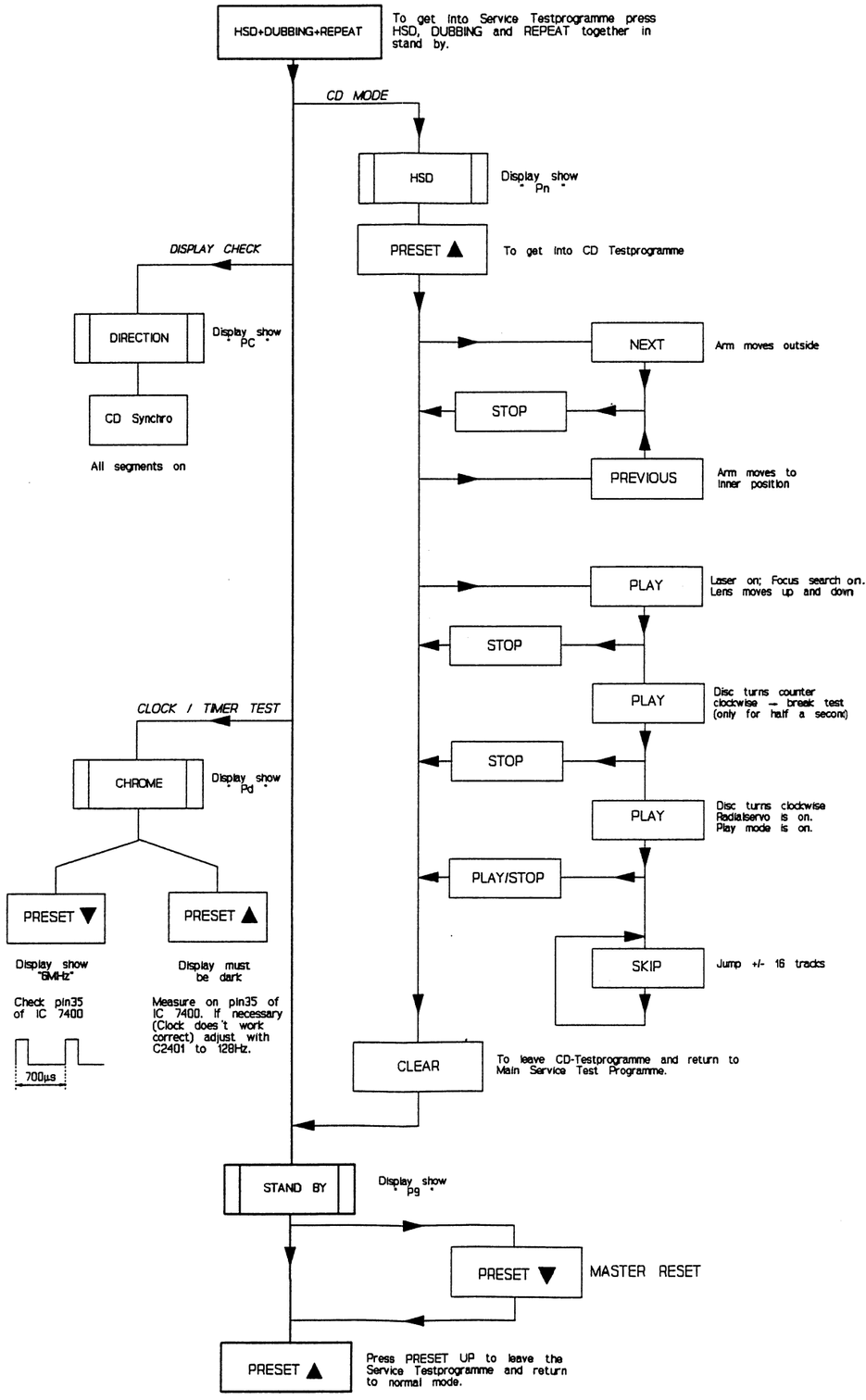
	*1	F 1	3847	G 4
	*1	H 1	3848	G 3
	*1	L19	3849	H 3
A	1002	H19	3850	I 3
	1801	B 1	3851	I 3
	1810	N 1	3852	K12
	1830	N16	3853	L16
	1831	N13	3854	L16
	1840	K18	3855	K17
	1870	I29	3856	C19
	1871	L29	3857	C20
B	1890	M25	3858	C21
	2801	J 5	3859	B21
	2802	J 3	3860	F26
	2803	K 5	3861	F26
	2804	M 4	3862	B26
	2805	N 4	3863	A24
	2806	N 5	3865	H25
	2807	N 8	3866	H26
	2808	N 8	3868	L25
C	2809	M 8	3869	L25
	2810	M 8	3870	J27
	2811	A10	3871	K25
	2812	I 8	3872	I26
	2813	I 8	3873	K26
	2814	I 9	3874	J26
	2815	A11	3875	L26
	2816	B11	3876	I25
D	2817	F10	3877	K26
	2818	G10	3878	J27
	2819	G 6	3879	J27
	2820	F 6	3880	I28
	2821	F 6	3881	K28
	2822	E 6	3883	F28
	2823	D 6	3884	G28
	2824	C 6	3885	G28
E	2825	D 5	3886	N19
	2826	M 5	3887	N19
	2827	G 5	3888	N20
	2828	H 4	3889	N19
	2829	I 3	3890	M22
	2830	I 3	3891	M21
	2831	E 3	3892	I20
	2832	D 3	3893	H20
F	2833	C 5	3894	H17
	2835	J16	3895	K20
	2837	M16	3896	J17
	2838	L16	3899	M22
	2839	L17	3900	K15
	2840	C18	5820	I29
	2841	C19	5821	K29
	2842	C19	5822	H22
G	2843	C20	5823	H22
	2844	C20	5824	G22
	2845	B20	5830	K15
	2846	B20	5840	K18
	2847	K15	5841	K19
	2848	F26	5842	D24
	2849	F26	5820	B11
	2850	K18	5840	G26
	2851	I20	5841	J19
H	2860	H27	5842	J18
	2861	H25	5890	N19
	2862	H24	7503	H20
	2863	H25	7801	J 3
	2864	J25	7810	K 6
	2865	K25	7820	D 8
	2866	I26	7821	D 2
	2867	K25	7822	C 1
I	2868	J26	7830	E14
	2869	L26	7840	C23
	2870	I27	7841	I19
	2871	K27	7842	J18
	2872	I28	7843	J18
	2873	K28	7844	J18
	2890	N22	7850	D27
	2891	H29	7855	I22
J	2898	J26	7860	H28
	2899	J28	7870	I24
	3510	H20	7871	L25
	3511	H19	7872	J25
	3801	J 2	7873	K27
	3802	J 4	7874	I27
	3803	K 4	7890	N20
	3804	L 4	7891	N21
K	3805	N 4	7892	M22
	3806	N 4		
	3807	M 9		
	3808	M 9		
	3809	L 8		
	3810	K 8		
	3811	K 8		
	3812	M10		
L	3813	I 2		
	3815	A11		
	3816	B11		
	3817	F10		
	3818	F10		
	3819	E 6		
	3820	C 6		
	3821	C 6		
	3822	B 6		
M	3823	C 6		
	3824	C 5		
	3825	C 5		
	3826	D 5		
	3827	D 4		
	3828	E 4		
	3829	E 4		
N	3830	D 3		
	3831	D 2		
	3832	D 2		
	3833	D 2		
	3834	D 1		
	3835	E 3		
	3840	G 5		
	3841	F 5		
O	3843	M 5		
	3844	M 5		
	3845	M 5		
	3846	M 4		



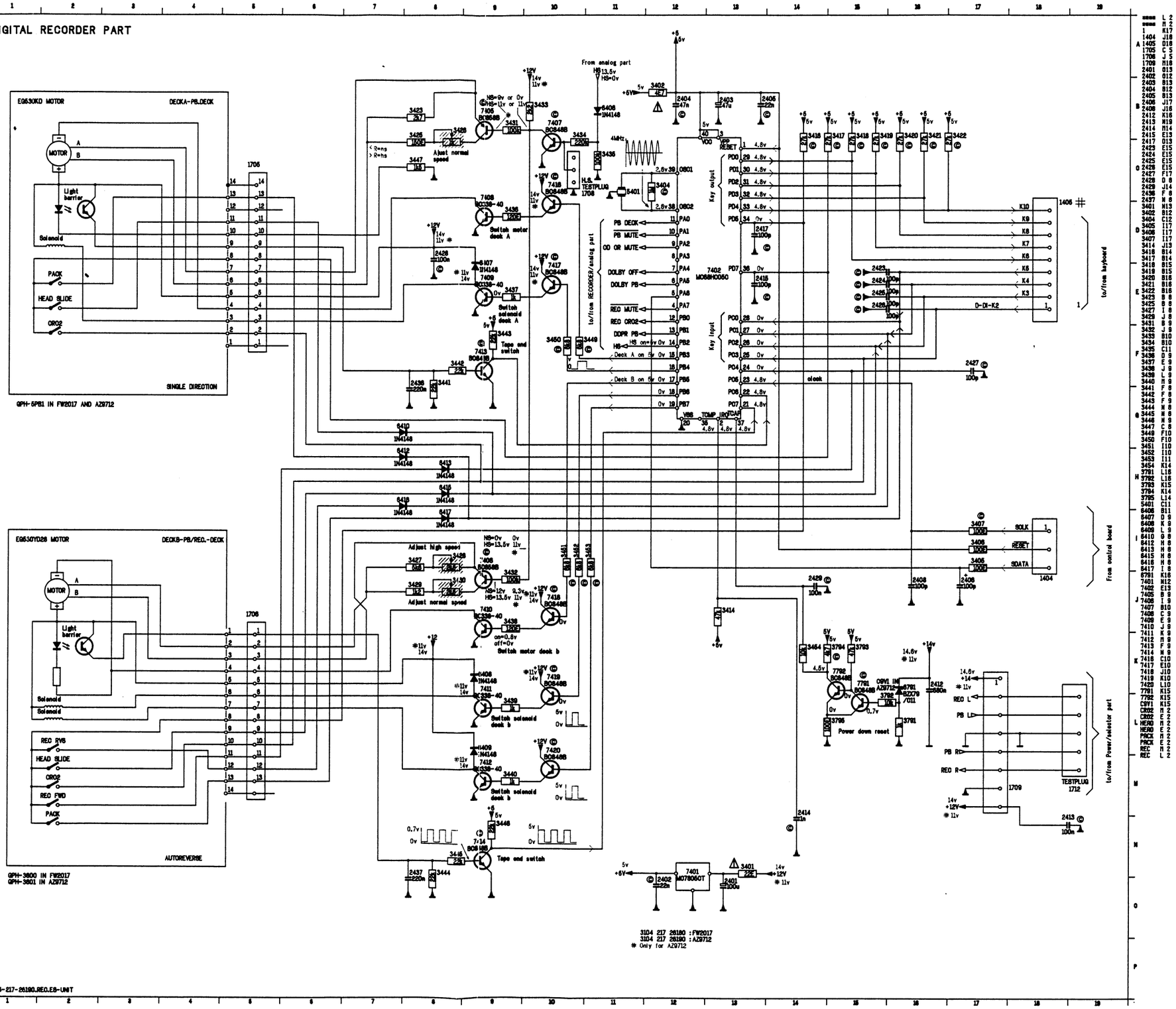
Alignment instructions

	Measuring point	Adjust with	Value
Laser	1 ⟷ 2	3804	50mV ± 2,5mV
Focus offset	3 ⟷ 4	3840	400mV ± 40mV

Service Testprogramme



DIGITAL RECORDER PART



Adjustment table Recorder part

Adjustment	Cassette	Recorder	Measure on ◇	Read on	Adjust with	Adjust to
Motor speed High speed[1] Normal speed	SBC 420 3150 Hz	 PLAY Deck **A** PLAY Deck **B** PLAY Deck **A** PLAY Deck **B**	1 or 2 or Speaker out	Frequency Counter	check only 3428 3426 3430	f_{HS1} = 6000 Hz ± 10% f_{HS2} = f_{HS1} ±1% 3150 Hz ± 1% 3150 Hz ± 1%
Wow & Flutter	SBC 420 3150 Hz	PLAY Deck **A** PLAY Deck **B**		Wow & Flutter meter	check only	≤ 0,3%
Azimuth[2]	SBC 420 10 kHz	PLAY Deck **A** PLAY Deck **B**		mV-meter	Right hand screw (normal direction) Left hand screw (reverse direction) Left hand screw	max. output left=right

1) For High Speed during play connect B of 7407 to GND. Use the testplug 1708. See Figure 1.

2) For adjustment of azimuth remove the PLAY button for Deck **B** and the STOP button for Deck **A**.

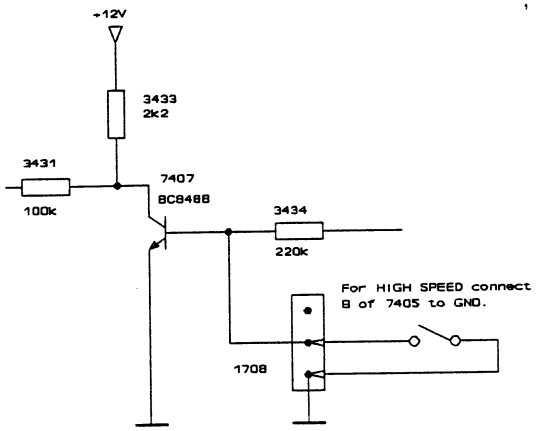


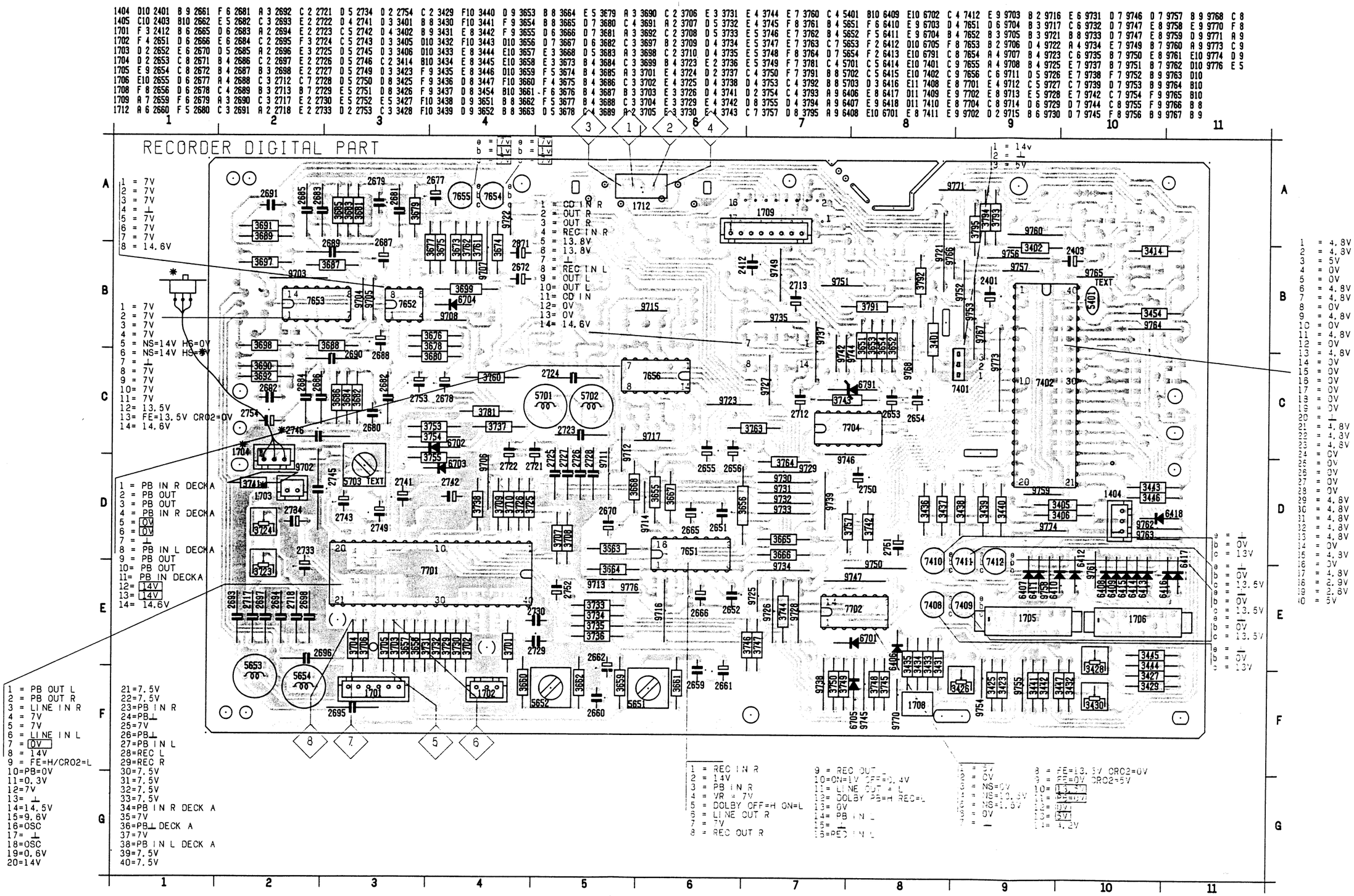
Fig. 1

Adjustment	Source ◇	Recorder	Measure on ◇	Read on	Adjust width	Adjust to
Playback Sensitivity	Dolby reference level cassette 200 nW/m	PLAY both decks	1 for left channel 2 for right channel	V meter	Check only	775 mV ± 2 dB
Recording Sensitivity[3]	500 mV/ 315 Hz left : 3 right : 4 500 mV/ 315 Hz left : 3 right : 4	REC Deck **B** Dolby off CrO_2 Fe	5 ↔ 6 for left Ch. 7 ↔ 8 for right Ch. 5 ↔ 6 for left Ch. 7 ↔ 8 for right Ch.	V meter	Check only	U_{CrO2} = 2,1mV ± 2dB[4] U_{Fe} = U_{CrO2} -3,5dB ± 1dB
Bias	-	REC Deck **B** CrO_2 Fe	5 ↔ 6 for left Ch. 7 ↔ 8 for right Ch. 5 ↔ 6 for left Ch. 7 ↔ 8 for right Ch.	V meter	3723 left 3724 right Check only	U_{CrO2} = 14,5 mV[5] U_{CrO2} = 14,5 mV U_{Fe} = U_{CrO2} -3,5dB ± 1dB
Erase Oscillator	-	REC Deck **B**	Erase head	V meter Counter	Check only	CrO_2 33V ± 5V Fe 22V ± 4V f=80kHz ± 6kHz

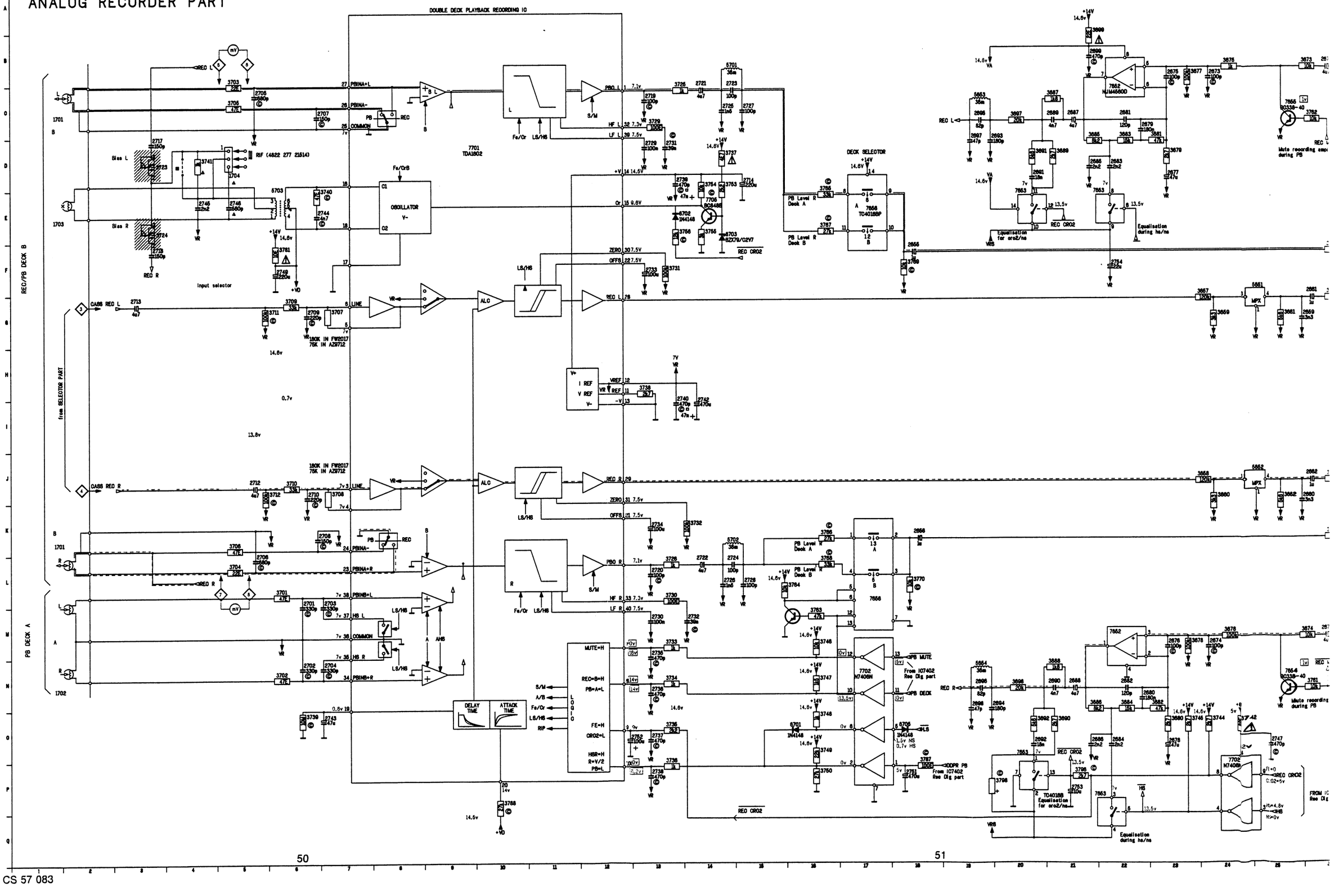
3) For measuring the Recording sensitivity use a low pass filter to attenuate the bias component.

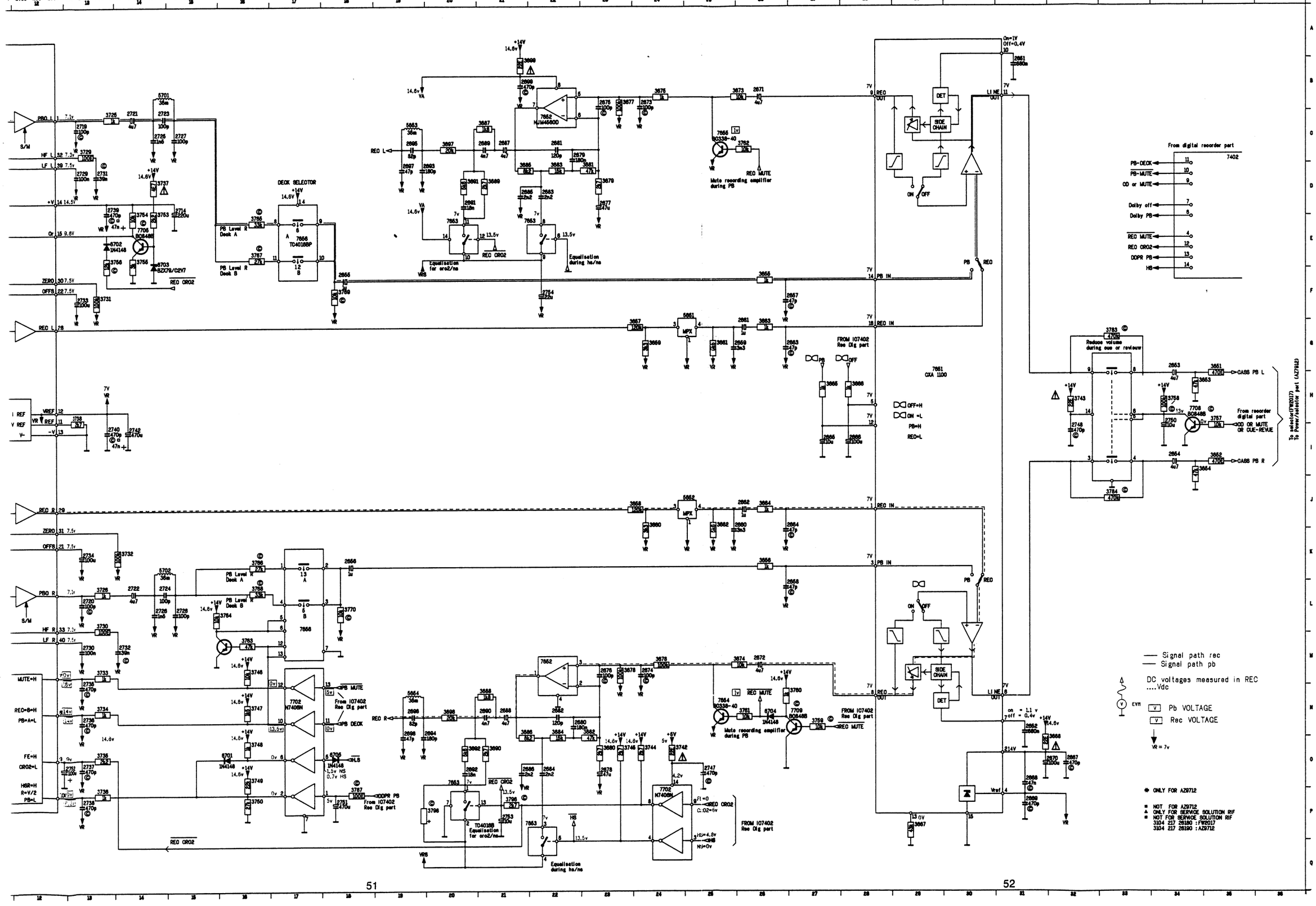
4) Make a record and check if recorded signal gives 775 mV on 1 and 2 in playback. Distortion ≤3%.

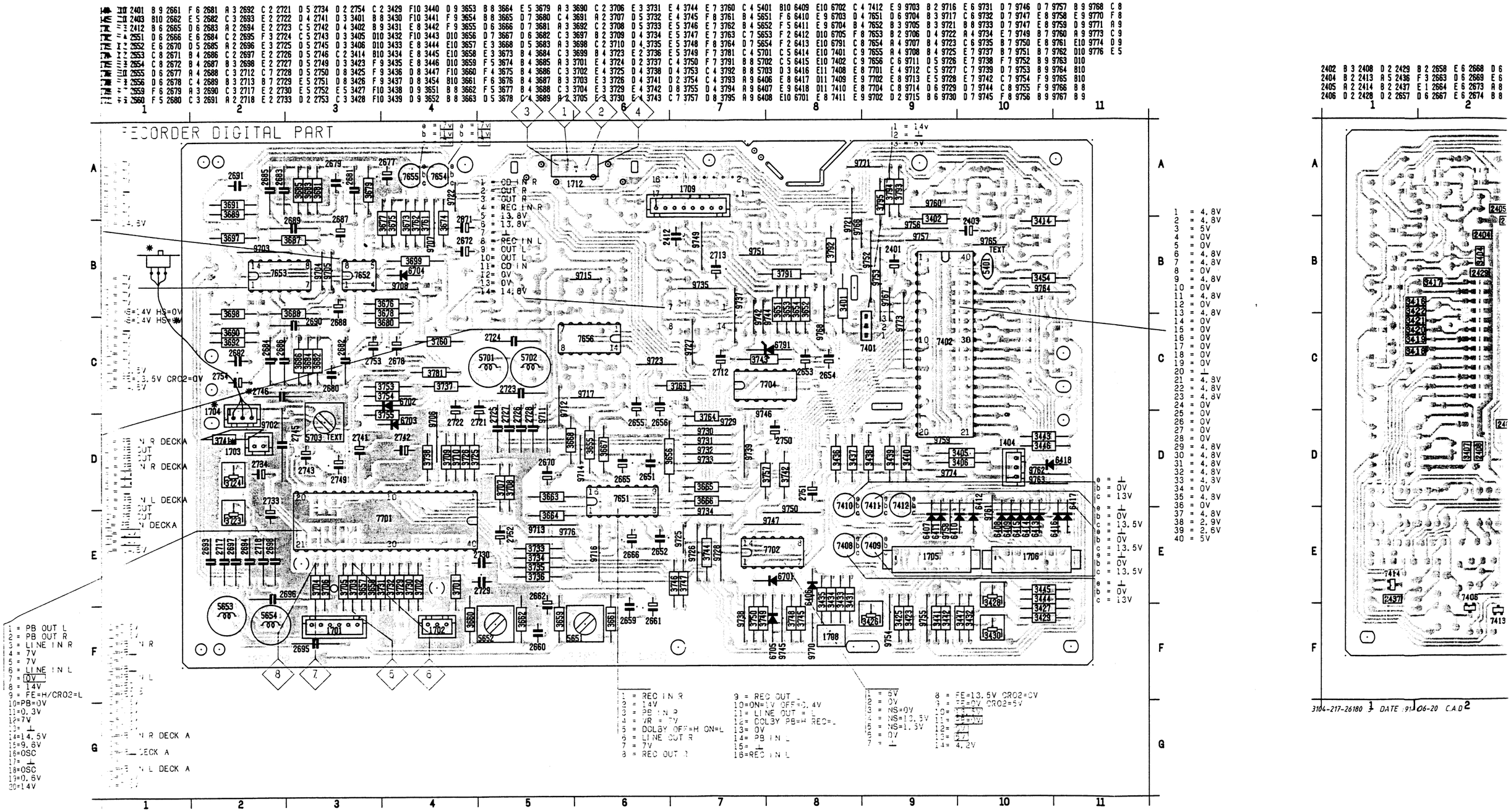
5) If sensitivity, distortion or frequency response (see specification) are wrong, then readjust bias and check again.

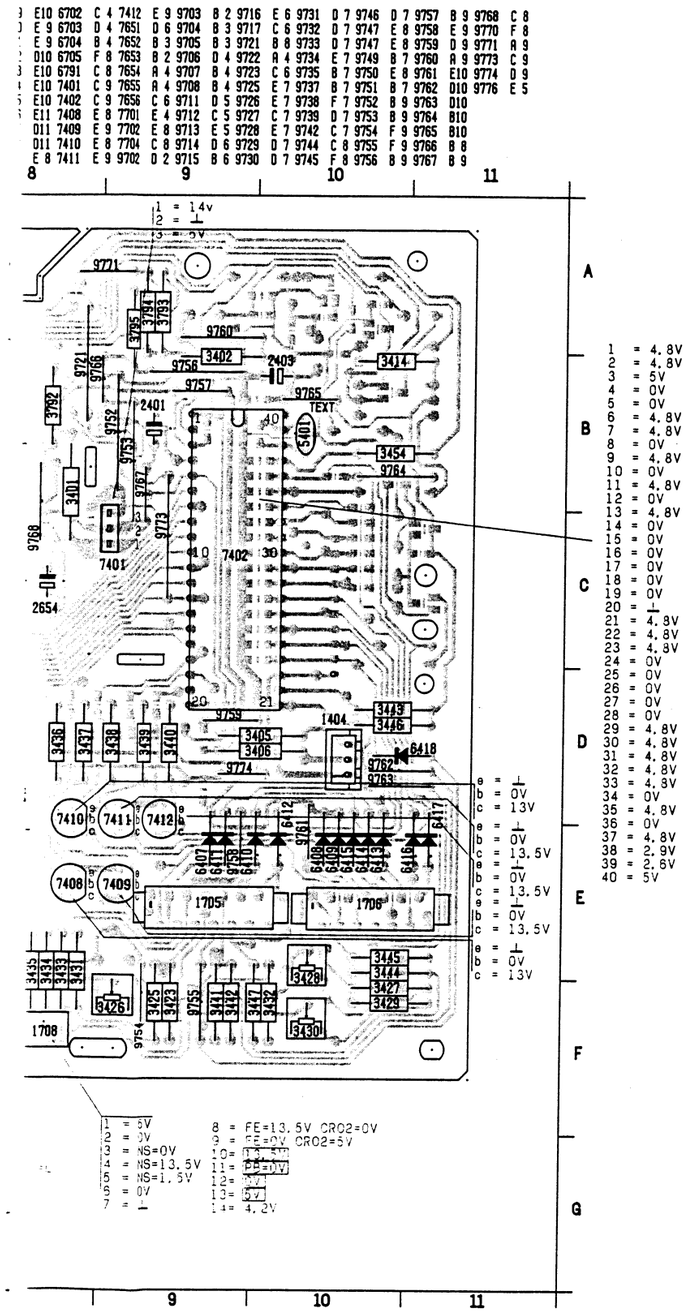

RECORDER DIGITAL PART
1 = 7V
2 = 7V
3 = 7V
4 = ⊥
5 = 7V
6 = 7V
7 = 7V
8 = 14.6V
1 = 7V
2 = 7V
3 = 7V
4 = 7V
5 = NS=14V HG=0V
6 = NS=14V HG=*V
7 = ⊥
8 = 7V
9 = 7V
10= 7V
11= 7V
12= 13.5V
13= FE=13.5V CRO2=0V
14= 14.6V
1 = PB IN R DECKA
2 = PB OUT
3 = PB OUT
4 = PB IN R DECKA
5 = 0V
6 = 0V
7 = ⊥
8 = PB IN L DECKA
9 = PB OUT
10= PB OUT
11= PB IN DECKA
12= 14V
13= 14V
14= 14.6V
1 = PB OUT L
2 = PB OUT R
3 = LINE IN R
4 = 7V
5 = 7V
6 = LINE IN L
7 = 0V
8 = 14V
9 = FE=H/CRO2=L
10=PB=0V
11=0.3V
12=7V
13= ⊥
14=14.5V
15=9.6V
16=OSC
17= ⊥
18=OSC
19=0.6V
20=14V
21=7.5V
22=7.5V
23=PB IN R
24=PB⊥
25=7V
26=PB⊥
27=PB IN L
28=REC L
29=REC R
30=7.5V
31=7.5V
32=7.5V
33=7.5V
34=PB IN R DECK A
35=7V
36=PB⊥ DECK A
37=7V
38=PB IN L DECK A
39=7.5V
40=7.5V
1 = CD IN R
2 = OUT R
3 = OUT R
4 = REC IN R
5 = 13.8V
6 = 13.8V
7 = ⊥
8 = REC IN L
9 = OUT L
10= OUT L
11= CD IN
12= 0V
13= 0V
14= 14.6V
1 = REC IN R
2 = 14V
3 = PB IN R
4 = VR = 7V
5 = DOLBY OFF=H ON=L
6 = LINE OUT R
7 = 7V
8 = REC OUT R
9 = REC OUT L
10=ON=1V OFF=0.4V
11= LINE OUT = L
12= DOLBY PB=H REC=L
13= 0V
14= PB IN L
15= ⊥
16=REC IN L
1 = 14v
2 = ⊥
3 = 5V
1 = 5V
2 = 0V
3 = NS=0V
4 = NS=13.5V
5 = NS=1.6V
6 = 0V
7 = —
8 = FE=13.5V CRO2=0V
9 = FE=0V CRO2=5V
10= 13.5V
11= 5V
12= 0V
13= 5V
14= 4.2V
1 = 4.8V
2 = 4.8V
3 = 5V
4 = 0V
5 = 0V
6 = 4.8V
7 = 4.8V
8 = 0V
9 = 4.8V
10 = 0V
11 = 4.8V
12 = 0V
13 = 4.8V
14 = 0V
15 = 0V
16 = 0V
17 = 0V
18 = 0V
19 = 0V
20 = ⊥
21 = 4.8V
22 = 4.8V
23 = 4.8V
24 = 0V
25 = 0V
26 = 0V
27 = 0V
28 = 0V
29 = 4.8V
30 = 4.8V
31 = 4.8V
32 = 4.8V
33 = 4.8V
34 = 0V
35 = 4.8V
36 = 0V
37 = 4.8V
38 = 2.9V
39 = 2.6V
40 = 5V
a = ⊥
b = 0V
c = 13V
a = ⊥
b = 0V
c = 13.6V
a = ⊥
b = 0V
c = 13.6V
a = ⊥
b = 0V
c = 13.6V
a = ⊥
b = 0V
c = 13V
1404 D10 2401 B 9 2661 F 6 2681 A 3 2692 C 2 2721 D 5 2734 D 2 2754 C 2 3429 F10 3440 D 9 3653 B 8 3664 E 5 3679 A 3 3690 C 2 3706 E 3 3731 E 4 3744 E 7 3760 C 4 5401 B10 6409 E10 6702 C 4 7412 E 9 9703 B 2 9716 E 6 9731 D 7 9746 D 7 9757 B 9 9768 C 8
1405 C10 2403 B10 2662 E 5 2682 C 3 2693 E 2 2722 D 4 2741 D 3 3401 B 8 3430 F10 3441 F 9 3654 B 8 3665 D 7 3680 C 4 3691 A 2 3707 D 5 3732 E 4 3745 F 8 3761 B 4 5651 F 6 6410 E 9 6703 D 4 7651 D 6 9704 B 3 9717 C 6 9732 D 7 9747 E 8 9758 E 9 9770 F 8
1701 F 3 2412 B 6 2665 D 6 2683 A 2 2694 E 2 2723 C 5 2742 D 4 3402 B 9 3431 E 8 3442 F 9 3655 D 6 3666 D 7 3681 A 3 3692 C 2 3708 D 5 3733 E 5 3746 E 7 3762 B 4 5652 F 5 6411 E 9 6704 B 4 7652 B 3 9705 B 3 9721 B 8 9733 D 7 9747 E 8 9759 D 9 9771 A 9
1702 F 4 2651 D 6 2666 E 6 2684 C 2 2695 F 3 2724 C 5 2743 D 3 3405 D10 3432 F10 3443 D10 3656 D 7 3667 D 6 3682 C 3 3697 B 2 3709 D 4 3734 E 5 3747 E 7 3763 C 7 5653 F 2 6412 D10 6705 F 8 7653 B 2 9706 D 4 9722 A 4 9734 E 7 9749 B 7 9760 A 9 9773 C 9
1703 D 2 2652 E 6 2670 D 5 2685 A 2 2696 E 3 2725 D 5 2745 D 3 3406 D10 3433 E 8 3444 D10 3657 E 3 3668 D 5 3683 A 3 3698 C 2 3710 D 4 3735 E 5 3748 F 8 3764 D 7 5654 F 2 6413 E10 6791 C 8 7654 A 4 9707 B 4 9723 C 6 9735 B 7 9750 E 8 9761 E10 9774 D 9
1704 D 2 2653 C 8 2671 B 4 2686 C 2 2697 E 2 2726 D 5 2746 C 2 3414 B10 3434 E 8 3445 E10 3658 E 3 3673 B 4 3684 C 3 3699 B 4 3723 E 2 3736 E 5 3749 F 7 3781 C 4 5701 C 5 6414 E10 7401 C 9 7655 A 4 9708 B 4 9725 E 7 9737 B 7 9751 B 7 9762 D10 9776 E 5
1705 E 9 2654 C 8 2672 B 4 2687 B 3 2698 E 2 2727 D 5 2749 D 3 3423 F 9 3435 E 8 3446 D10 3659 F 5 3674 B 4 3685 A 3 3701 E 4 3724 E 2 3737 C 4 3750 F 7 3791 B 8 5702 C 5 6415 E10 7402 C 9 7656 C 6 9711 D 5 9726 E 7 9738 F 7 9752 B 9 9763 D10
1706 E10 2655 D 6 2677 A 4 2688 C 3 2712 C 7 2728 D 5 2750 D 8 3425 F 9 3436 D 8 3447 F10 3660 F 4 3675 B 4 3686 C 3 3702 E 4 3725 D 4 3738 D 3 6416 E11 7408 E 8 7701 E 4 9712 C 5 9727 C 7 9739 D 7 9753 B 9 9764 B10
1708 F 8 2656 D 6 2678 C 4 2689 B 3 2713 B 7 2729 E 5 2751 D 8 3426 F 9 3437 D 8 3454 B10 3661 F 6 3676 B 4 3687 B 3 3703 E 3 3726 D 4 3741 D 2 3754 C 4 3793 A 9 6406 E 8 6417 D11 7409 E 9 7702 E 8 9713 E 5 9728 E 7 9742 C 7 9754 F 9 9765 B10
1709 A 7 2659 F 6 2679 A 3 2690 C 3 2717 E 2 2730 E 5 2752 E 5 3427 F10 3438 D 9 3651 B 8 3662 F 5 3677 B 4 3688 C 3 3704 E 3 3729 E 4 3742 D 8 3755 D 4 3794 A 9 6407 E 9 6418 D11 7410 E 8 7704 C 8 9714 D 6 9729 D 7 9744 C 8 9755 F 9 9766 B 8
1712 A 6 2660 F 5 2680 C 3 2691 A 2 2718 E 2 2733 D 2 2753 C 3 3428 F10 3439 D 9 3652 B 8 3663 D 5 3678 C 4 3689 A 2 3705 E 3 3730 E 4 3743 C 7 3757 D 8 3795 A 9 6408 E10 6701 E 8 7411 E 9 9702 D 2 9715 B 6 9730 D 7 9745 F 8 9756 B 9 9767 B 9
1 2 3 4 5 6 7 8 9 10 11
A B C D E F G

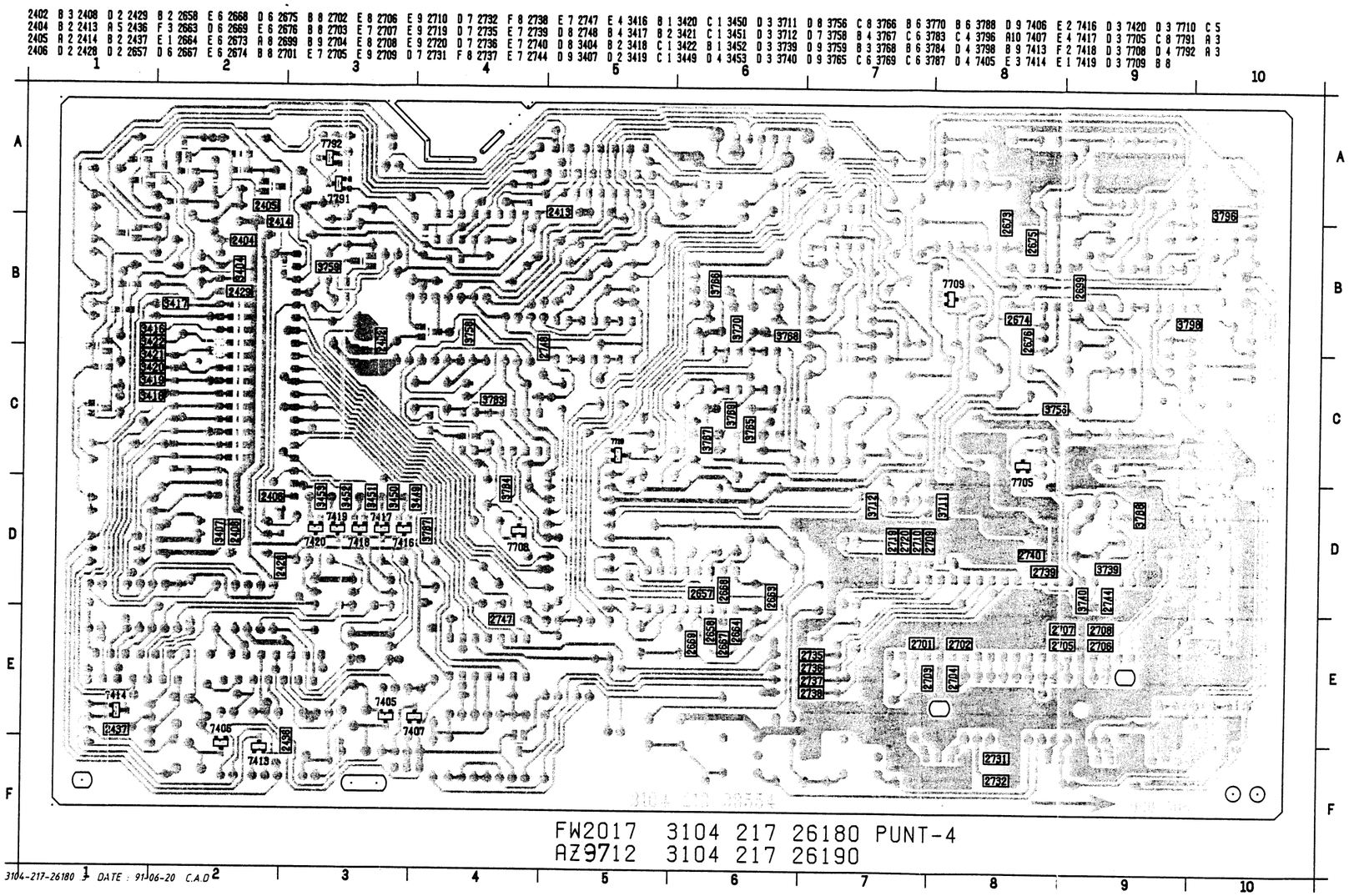
ANALOG RECORDER PART




PBO L
HF L
LF L
+V
Gr
ZERO
OFFS
REC L
REC R
PBO R
HF R
LF R
MUTE=H
REC=B=H
PB=A=L
FE=H
CRO2=L
HSR=H
R=V/2
PB=L
S/M
DECK SELECTOR
PB Level R Deck A
PB Level R Deck B
REC ORO2
Equalisation for ore2/ns
Equalisation during hs/ns
Mute recording amplifier during PB
REC MUTE
DET
SIDE CHAIN
ON
OFF
PB
REC
PB IN
REC IN
MPX
From digital recorder part
PB-DECK
PB-MUTE
CD or MUTE
Dolby off
Dolby PB
REC MUTE
REC ORO2
DDPR PB
HS
Reduce volume during cue or revieuw
CASS PB L
CASS PB R
From recorder digital part
CD OR MUTE
OR CUE-REVUE
To selector(PW2017)
To Power/selector part (AZ7912)
FROM IC7402 Rec Dig part
OFF=H
ON =L
PB=H
REC=L
Signal path rec
Signal path pb
DC voltages measured in REC ....Vdc
Pb VOLTAGE
Rec VOLTAGE
VR = 7v
* ONLY FOR AZ9712
NOT FOR AZ9712
ONLY FOR SERVICE SOLUTION RIF
NOT FOR SERVICE SOLUTION RIF
3104 217 28180 :FW2017
3104 217 28190 :AZ9712

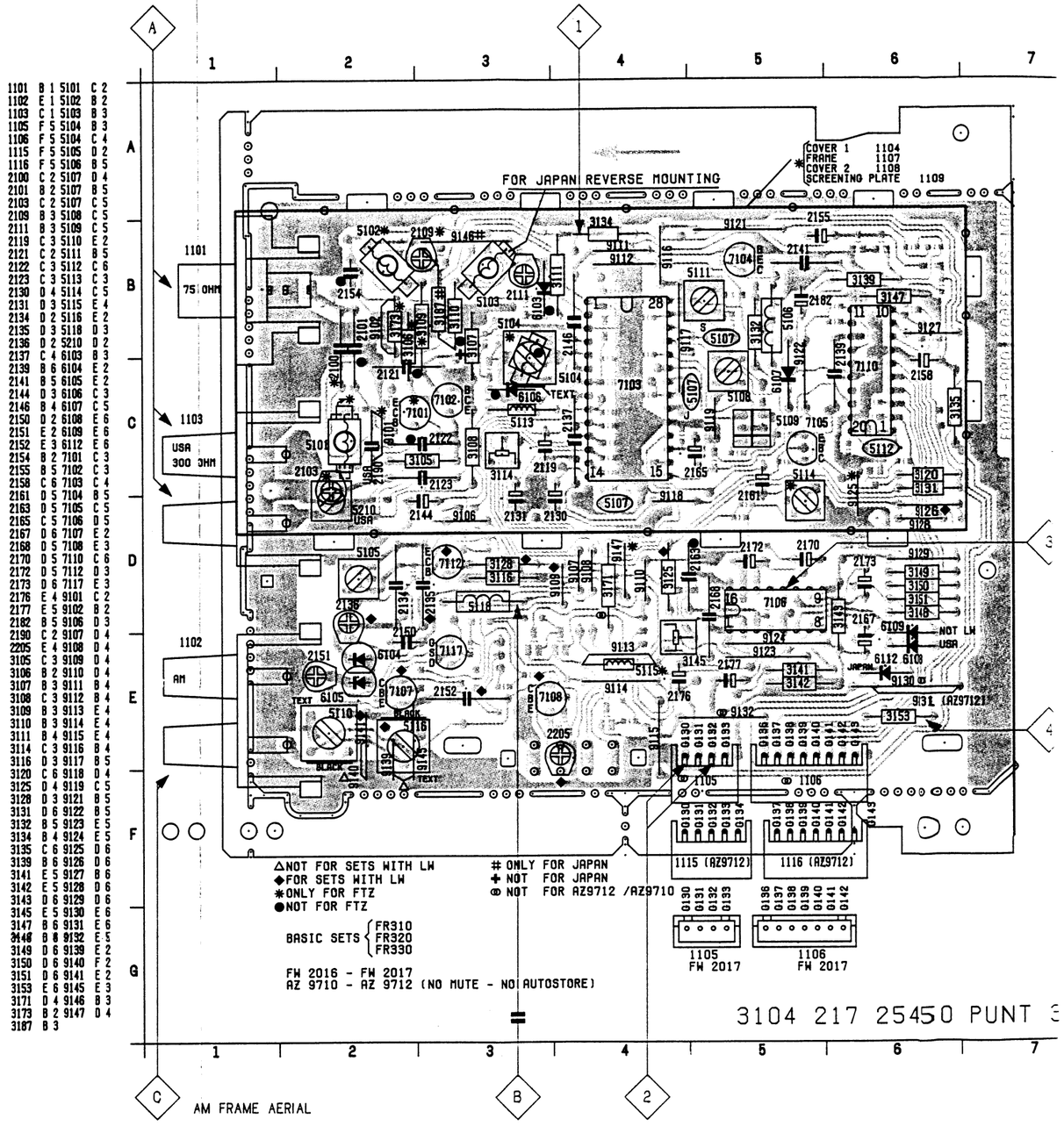

RECORDER DIGITAL PART
1 = OD I N R
2 = OUT R
3 = OUT R
4 = REC I N R
5 = 13.8V
6 = 13.8V
7 = ⊥
8 = REC I N L
9 = OUT L
10= OUT L
11= CD I N
12= 0V
13= 0V
14= 14.8V
1 = PB OUT L
2 = PB OUT R
3 = LINE I N R
4 = 7V
5 = 7V
6 = LINE I N L
7 = 0V
8 = 14V
9 = FE=H/CRO2=L
10=PB=0V
11=0.3V
12=7V
13= ⊥
14=14.5V
15=9.6V
16=OSC
17= ⊥
18=OSC
19=0.6V
20=14V
1 = REC I N R
2 = 14V
3 = PB I N R
4 = VR = 7V
5 = DOLBY OFF=H ON=L
6 = LINE OUT R
7 = 7V
8 = REC OUT R
9 = REC OUT L
10=ON=1V OFF=0.4V
11= LINE OUT = L
12= DOLBY PB=H REC=L
13= 0V
14= PB I N L
15= ⊥
16=REC I N L
1 = 5V
2 = 0V
3 = NS=0V
4 = NS=10.5V
5 = NS=1.5V
6 = 0V
7 = ⊥
8 = FE=13.5V CRO2=0V
9 = FE=0V CRO2=5V
1 = 4.8V
2 = 4.8V
3 = 5V
4 = 0V
5 = 0V
6 = 4.8V
7 = 4.8V
8 = 0V
9 = 4.8V
10 = 0V
11 = 4.8V
12 = 0V
13 = 4.8V
14 = 0V
15 = 0V
16 = 0V
17 = 0V
18 = 0V
19 = 0V
20 = ⊥
21 = 4.8V
22 = 4.8V
23 = 4.8V
24 = 0V
25 = 0V
26 = 0V
27 = 0V
28 = 0V
29 = 4.8V
30 = 4.8V
31 = 4.8V
32 = 4.8V
33 = 4.3V
34 = 0V
35 = 4.8V
36 = 0V
37 = 4.8V
38 = 2.9V
39 = 2.6V
40 = 5V
e = ⊥
b = 0V
c = 13V
e = ⊥
b = 0V
c = 13.5V
e = ⊥
b = 0V
c = 13.5V
e = ⊥
b = 0V
c = 13.5V
e = ⊥
b = 0V
c = 13V
1 = 14V
2 = ⊥
3 = 0V
a = 14V
b = 14V
a = 14V
b = 14V
a = 14V
b = 14


1 = 14v
2 = ⊥
3 = 5V
1 = 4,8V
2 = 4,8V
3 = 5V
4 = 0V
5 = 0V
6 = 4,8V
7 = 4,8V
8 = 0V
9 = 4,8V
10 = 0V
11 = 4,8V
12 = 0V
13 = 4,8V
14 = 0V
15 = 0V
16 = 0V
17 = 0V
18 = 0V
19 = 0V
20 = ⊥
21 = 4,8V
22 = 4,8V
23 = 4,8V
24 = 0V
25 = 0V
26 = 0V
27 = 0V
28 = 0V
29 = 4,8V
30 = 4,8V
31 = 4,8V
32 = 4,8V
33 = 4,8V
34 = 0V
35 = 4,8V
36 = 0V
37 = 4,8V
38 = 2,9V
39 = 2,6V
40 = 5V
e = ⊥
b = 0V
c = 13V
e = ⊥
b = 0V
c = 13,5V
e = ⊥
b = 0V
c = 13,5V
e = ⊥
b = 0V
c = 13,5V
e = ⊥
b = 0V
c = 13V
1 = 5V
2 = 0V
3 = NS=0V
4 = NS=13,5V
5 = NS=1,5V
6 = 0V
7 = ⊥
8 = FE=13,5V CRO2=0V
9 = SE=0V CRO2=5V
10 = 13,5V
11 = DE=0V
12 = 0V
13 = 5V
14 = 4,2V


FW2017 3104 217 26180 PUNT-4
AZ9712 3104 217 26190
3104-217-26180 3 DATE : 91-06-20 C.A.D

TUNER Adjustment table

Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
VARICAP ALIGNMENT						
FM 87,5 - 108 MHz			108 MHz	5104	1	10V ± 50 mV [4] 8V ± 50 mV
			87,5 MHz	check		1,15V ± 250 mV [4] 2,7V ± 400 mV
AM (2-band version) 530 - 1700 kHz [1]			1700 kHz	5105		7,6V ± 100 mV
			530 kHz	check		1V ± 200 mV
LW 148 - 284 kHz			284 kHz	5105		8,4V ± 200 mV
MW (3-band version) 522 - 1611 kHz [2]			1611 kHz	2136		8,5V ± 100 mV
FM - RF [3]						
FM	87,5 MHz mod = 1 kHz Δf = 22,5 kHz	A	87,5 MHz	5103	2	max. ↕
				5101 [4] 5102 [4]		
	108 MHz mod = 1 kHz Δf = 22,5 kHz		108 MHz	2111		
				2103 [4] 2109 [4]		
FM - IF						
FM	108 MHz Δf = 500 kHz as low as possible		108 MHz	5111	2	symmetrical and max. height
STEREO DECODER						
FM	98 MHz carrier 1 mV	A	98 MHz	3145	3	19 kHz ± 50 Hz
SEARCH SENSITIVITY						
FM	98 MHz carrier 12 µV	A	98 MHz	3114	4	adjust so that voltage switches from low to high
FM	98 MHz carrier 15 µV	A	99 MHz or 97 MHz	check		press DOWN or UP and check that set stops at 98 MHz
FM Autostore [5]	98 MHz carrier 350 µV	A	99 MHz or 97 MHz	check		press DOWN or UP and check that set stops at 98 MHz
AM - IF						
MW	522 kHz [6] Δf = 10 kHz as low as possible	B via 100nF	522 kHz	5108	2	symmetrical and max. height
AM - RF						
MW mod = 1 kHz 30% AM	560 kHz [1] 558 kHz	C	560 kHz [1] 558 kHz	5110	2	max. ↕
	1600 kHz [1] 1494 kHz		1600 kHz [1] 1494 kHz	2151		
LW mod =1 kHz 30% AM	155 kHz		155 kHz	5116		max. ↕
	270 kHz		270 kHz	2205		



↕ Repeat

1) used in AUSTRALIA, CANADA and USA versions.

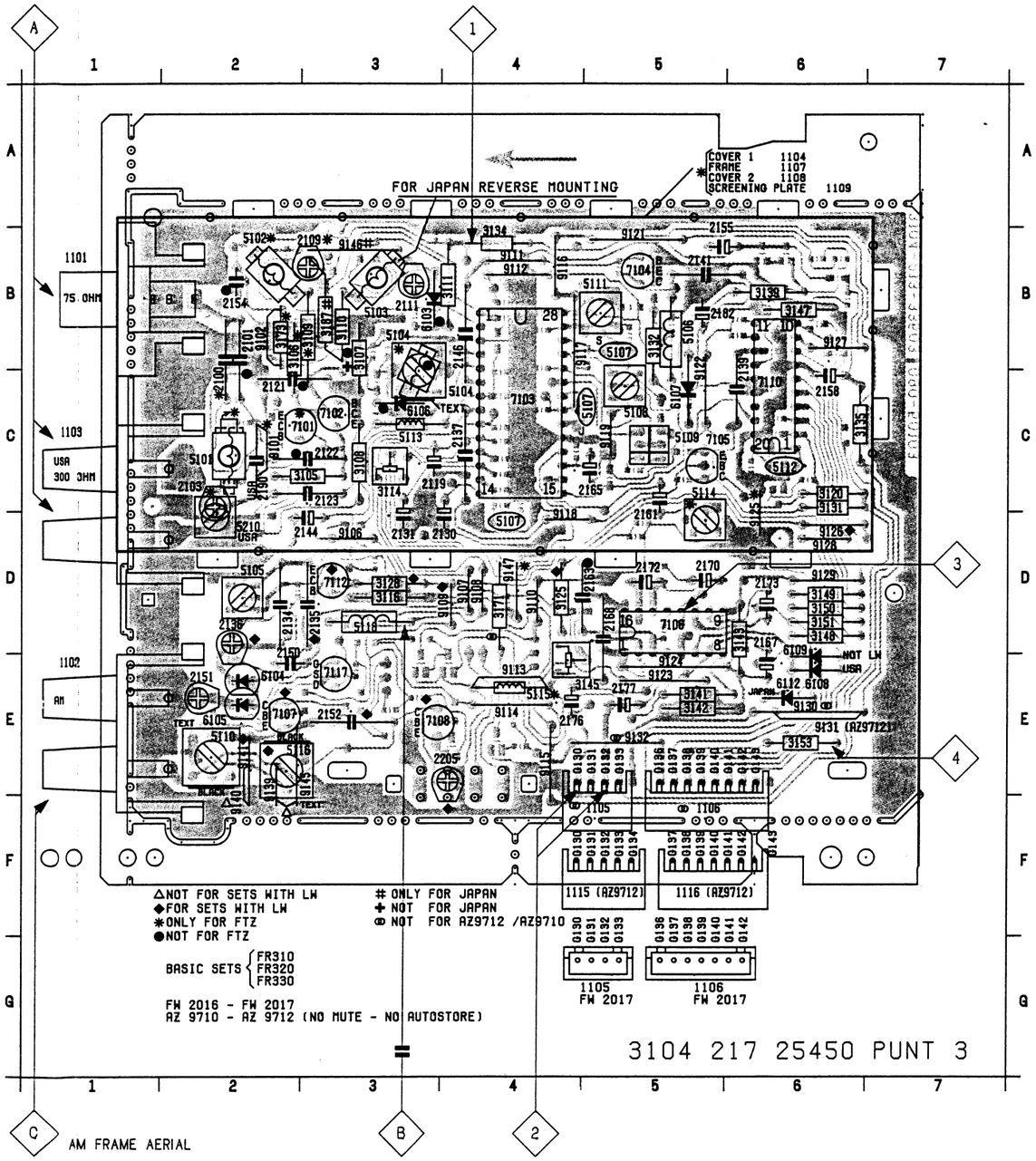
2) used in European versions.

3) For all sets except FTZ versions adjust coil 5101 for nominal position (top of core approx. 3mm from topedge coil).

4) only for FTZ versions (metal screening cabinet)

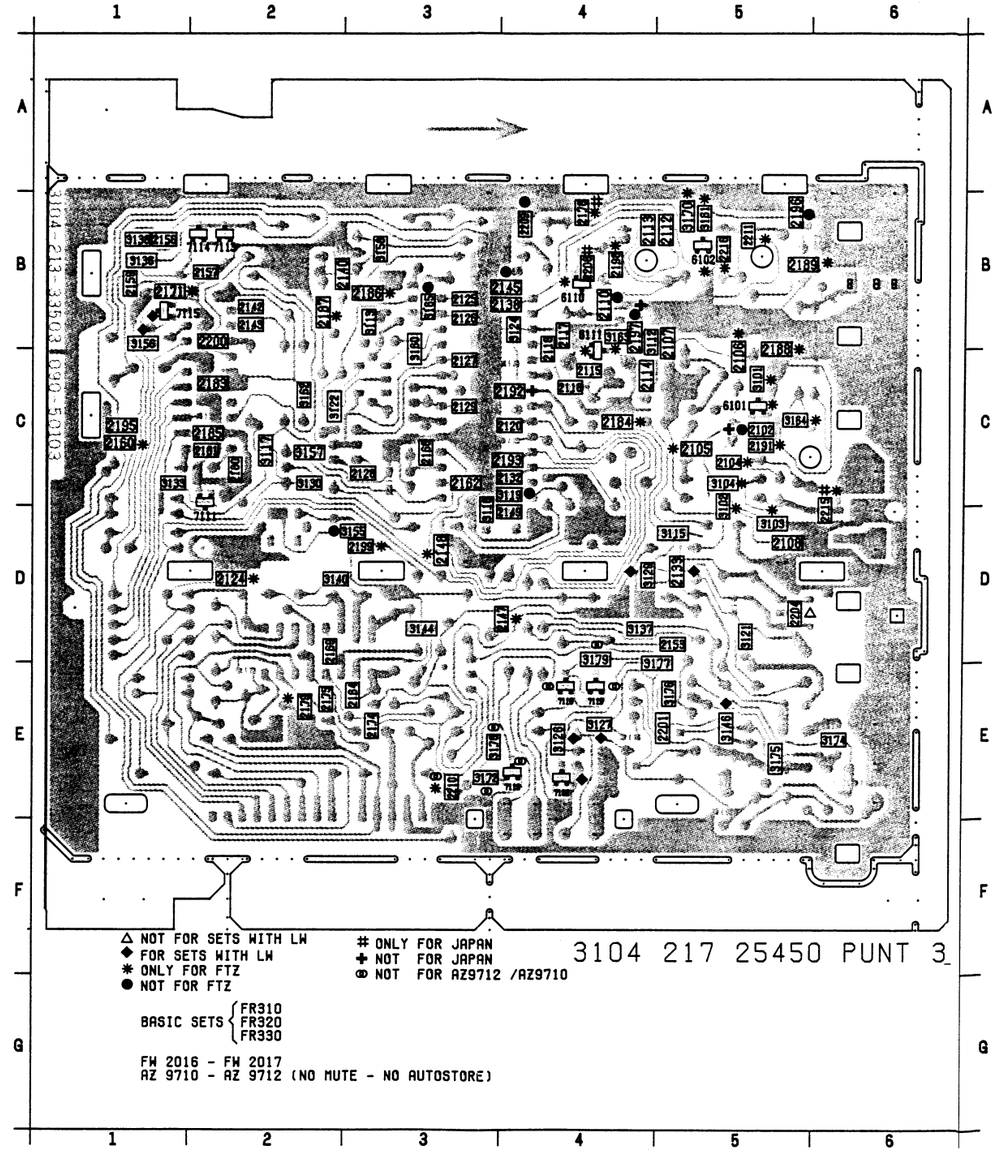
5) Connect G136 to GND to switch set into Autostore sensitivity

6) via low impedance (5Ω) direct to pin 10 of 7103 (see fig. 1).



‡ Repeat

1) used in AUSTRALIA, CANADA and USA versions.
2) used in European versions.
3) For all sets except FTZ versions adjust coil 5101 for nominal position (top of core approx. 3mm from topedge coil).
4) only for FTZ versions (metal screening cabinet)
5) Connect G136 to GND to switch set into Autostore sensitivity
6) via low impedance (5Ω) direct to pin 10 of 7103 (see fig. 1).


△ NOT FOR SETS WITH LW
◆ FOR SETS WITH LW
✱ ONLY FOR FTZ
● NOT FOR FTZ
BASIC SETS { FR310 FR320 FR330
FW 2016 - FW 2017
AZ 9710 - AZ 9712 (NO MUTE - NO AUTOSTORE)
ONLY FOR JAPAN
✚ NOT FOR JAPAN
⚮ NOT FOR AZ9712 /AZ9710
3104 217 25450 PUNT 3

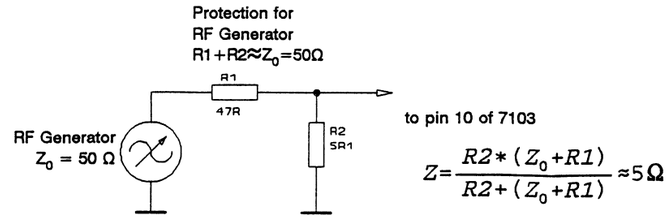
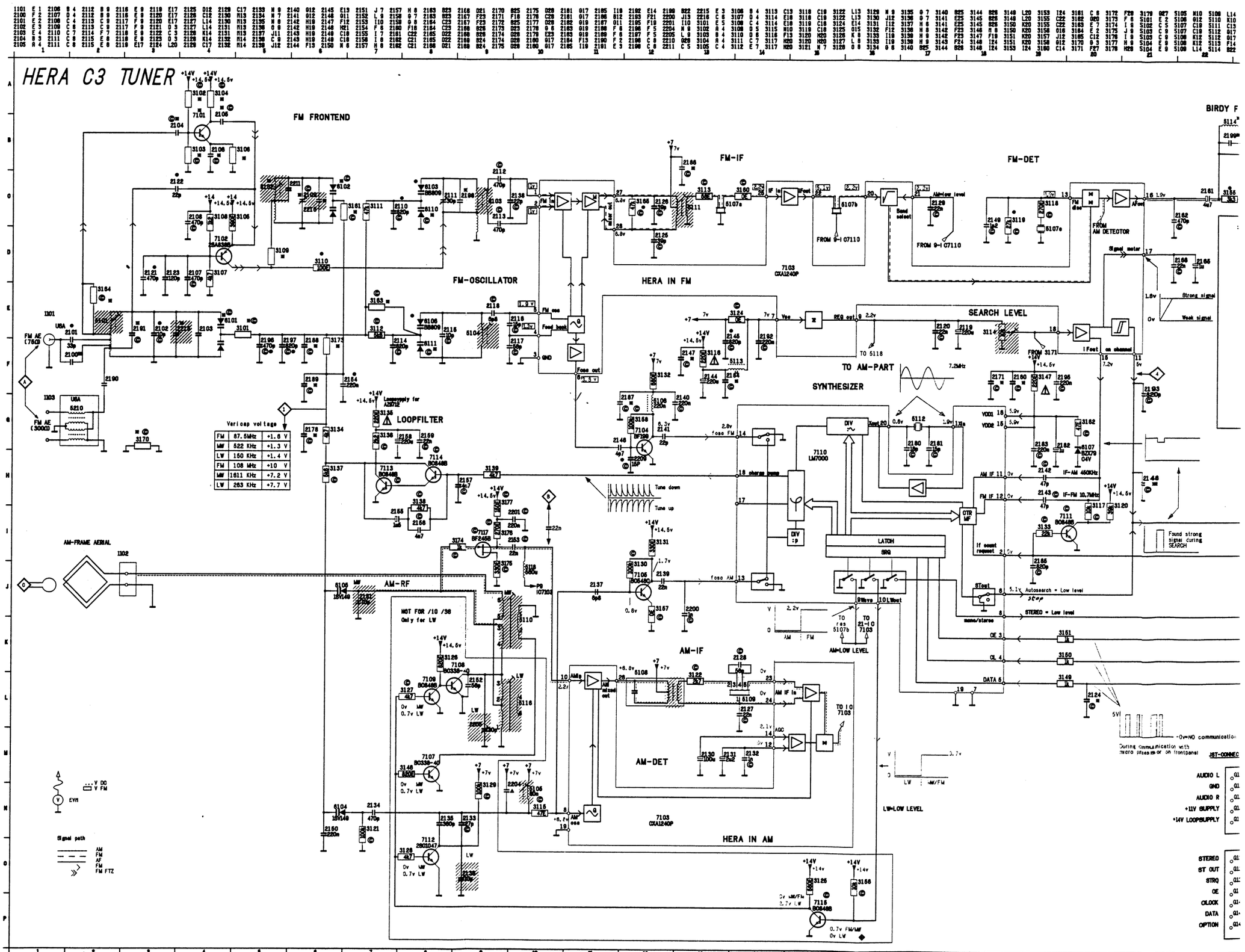
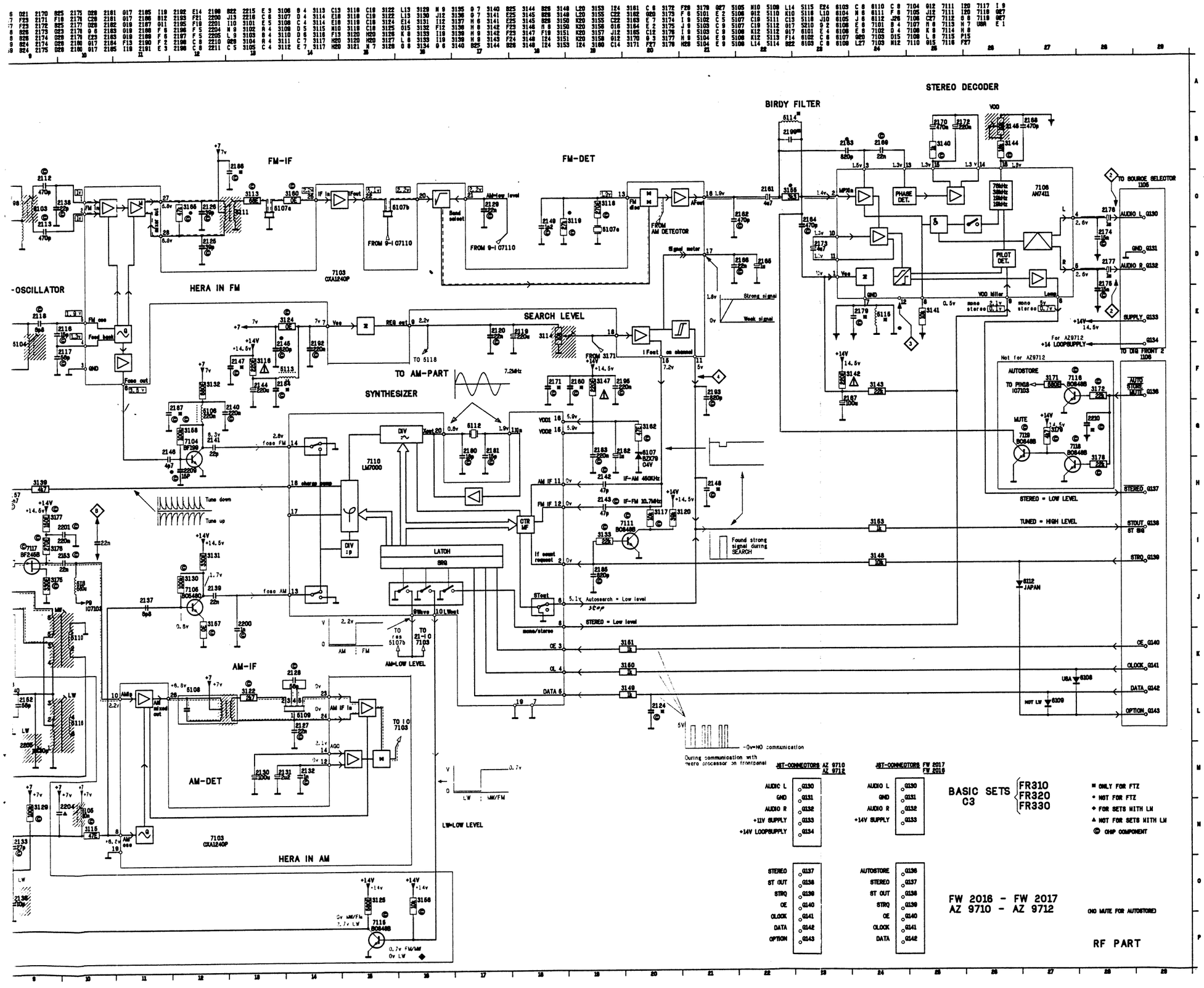


Fig. 1

HERA C3 TUNER




STEREO DECODER
BIRDY FILTER
FM-IF
FM-DET
HERA IN FM
SEARCH LEVEL
TO AM-PART
SYNTHESIZER
AM-IF
AM-DET
HERA IN AM
AM-LOW LEVEL
LW=LOW LEVEL
STEREO = LOW LEVEL
TUNED = HIGH LEVEL
RF PART
BASIC SETS C3
FR310
FR320
FR330
FW 2016 - FW 2017
AZ 9710 - AZ 9712
JST-CONNECTORS AZ 9710 AZ 9712
JST-CONNECTORS FW 2017 FW 2016
AUDIO L
GND
AUDIO R
+11V SUPPLY
+14V LOOPSUPPLY
+14V SUPPLY
STEREO
ST OUT
STRQ
OE
CLOCK
DATA
OPTION
AUTOSTORE
MUTE
TO SOURCE SELECTOR 1105
TO DIG FRONT 2 1106
FROM AM DETECTOR
FROM 9-I 07110
TO 5118
TO AM 5107b
TO 21-10 7103
TO PIN18 107103
JAPAN
USA
HOT LW
Found strong signal during SEARCH
During communication with micro processor on frontpanel
-0v=NO communication
Strong signal
Weak signal
Autosearch = Low level
STEREO = Low level
Not for AZ9712
For AZ9712 +14 LOOPSUPPLY
= ONLY FOR FTZ
* NOT FOR FTZ
◆ FOR SETS WITH LW
△ NOT FOR SETS WITH LW
© CHIP COMPONENT
GND MUTE FOR AUTOSTORED

401	4822 454 12761	ORNAMENTAL PLATE CD
402	4822 492 42573	SPRING DOOR
403	4822 454 12762	ORNAM. PLATE TIMER
404	4822 450 61791	WINDOW CASSETTE LEFT
406	4822 462 41871	RUBBER FOOT
407	not available	
408	4822 492 63086	SPRING KNOB FIXATION
409	4822 411 61839	KNOB (BASS-TREBLE)
411	4822 413 51391	KNOB VOLUME
412	4822 443 63455	CASSETTE DOOR LEFT
413	4822 459 11061	WORDMARK "PHILIPS"
414	4822 443 63457	CASSETTE FLAP LEFT
416	4822 444 60775	DOOR (SOUND PROC.)
	4822 535 93266	PIN (mounted in 416)
417	4822 450 61789	WINDOW PRINTED
418	4822 410 61563	KNOB CD + PB DECK
419	4822 417 10839	HINGE RIGHT
421	4822 417 10844	HINGE LEFT
422	4822 492 63927	SPRING,CASS.PRESS
423	4822 443 63456	CASSETTE DOOR RIGHT
424	4822 443 63458	CASSETTE FLAP RIGHT
426	4822 450 61788	CASSETTE WINDOW RIGH
427	4822 411 61838	KNOB REC/PB DECK
428	4822 410 61569	KNOB DSP ASSY
429	4822 529 10257	DAMPER CASS.DOOR
431	not available	
432	not available	
433	4822 410 61562	KNOB BAND
434	4822 410 61566	KNOB TIMER ASSY
436	4822 410 61568	POWER BUTTON
437	4822 492 52274	COMPRESSION SPRING
440	4822 403 70499	EJECT BRACKET LEFT
441	4822 426 51519	FRONT PRINTED
	4822 526 20196	MAGNET (mounted in 441)
442	4822 410 90167	CAP EJECT BUTTON
443	4822 410 61567	KNOB PRESET ASSY
444	4822 410 61565	KNOB TAPE
445	4822 403 70498	EJECT BRACKET RIGHT
446	4822 413 51389	KNOB SELECTOR ASSY

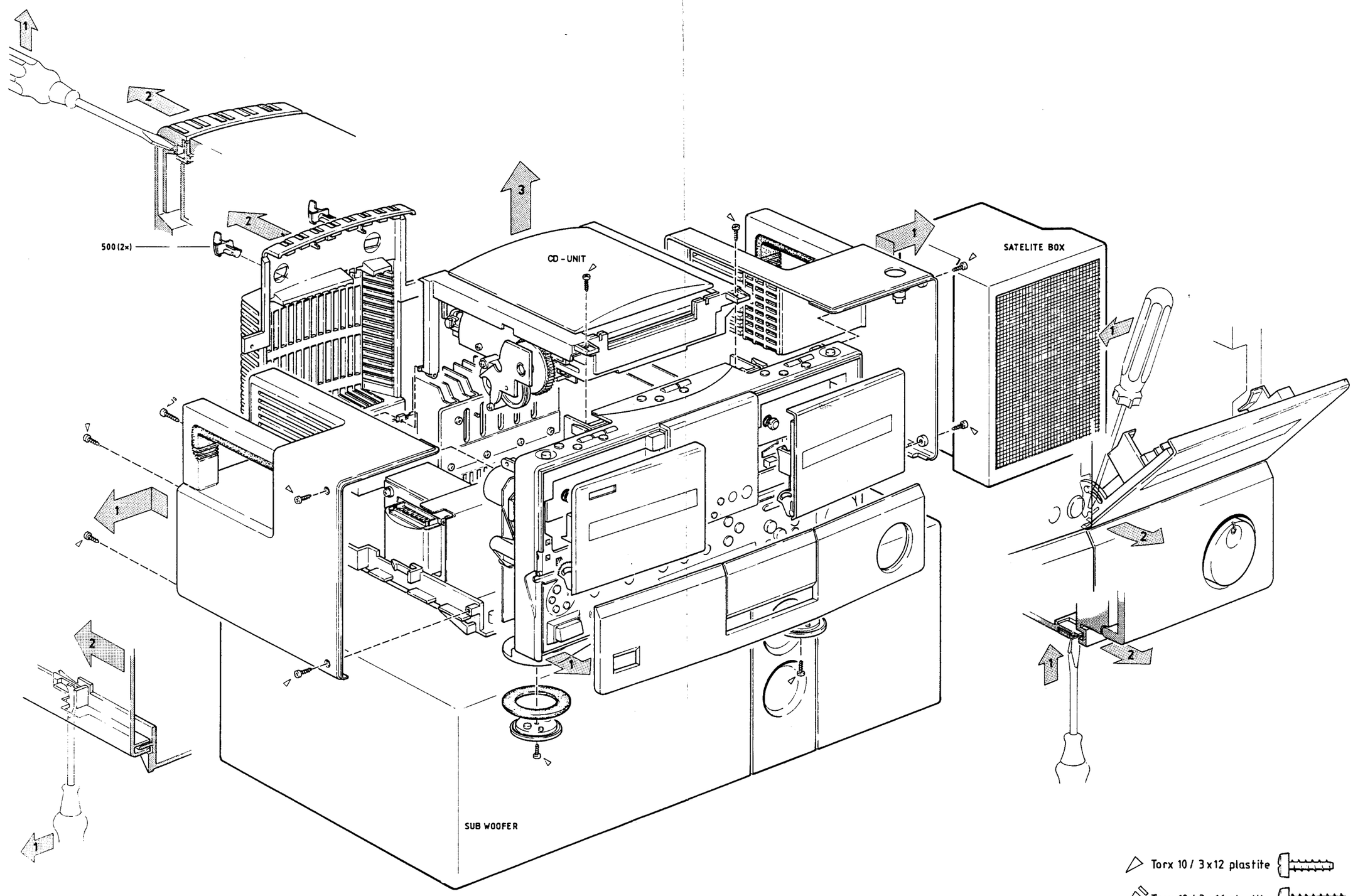
MISCELLANEOUS

4822 321 10776	MAINS CORD NOT /05
4822 321 10777	MAINS CORD ONLY /05
4822 218 10429	IR REMOTE CONTROL
4822 462 71749	LOOP ANTENNA FOOT
4822 303 40055	FRAME AERIAL
4822 445 10299	SUB WOOFER
4822 445 10301	SATELITE BOX
4822 500 10471	SHIPPING BOLT
4822 410 60294	PUSH BUTTON 9-10kHz (on backside of set)

Spare parts Tape Decks

100	**4822 691 20706**	**PB DECK (GPH5-PB1)**
101	4822 276 13076	SWITCH
102	4822 278 90673	SWITCH
103	4822 249 30168	PB HEAD
104	4822 528 70727	PINCH ROLLER ASSY
106	4822 281 11059	SOLENOID ASSY
107	4822 361 21429	MOTOR
108	4822 358 31122	DRIVE BELT MOTOR
109	4822 528 20724	CLUTCH BELT FRICTION
110	**4822 691 20707**	**REC/PB DECK GPH3600D**
111	4822 276 13076	SWITCH
112	4822 278 90673	SWITCH
113	4822 528 70729	PINCH ROLLER LEFT ASSY
114	4822 691 30256	ROTATION HEAD ASSY
116	4822 528 70728	PINCH ROLLER RIGHT ASSY
117	4822 281 11061	SOLENOID ASSY
118	4822 361 21429	MOTOR
119	4822 358 31123	DRIVE BELT MOTOR
121	4822 528 20725	CLUTCH BELT FRICTION

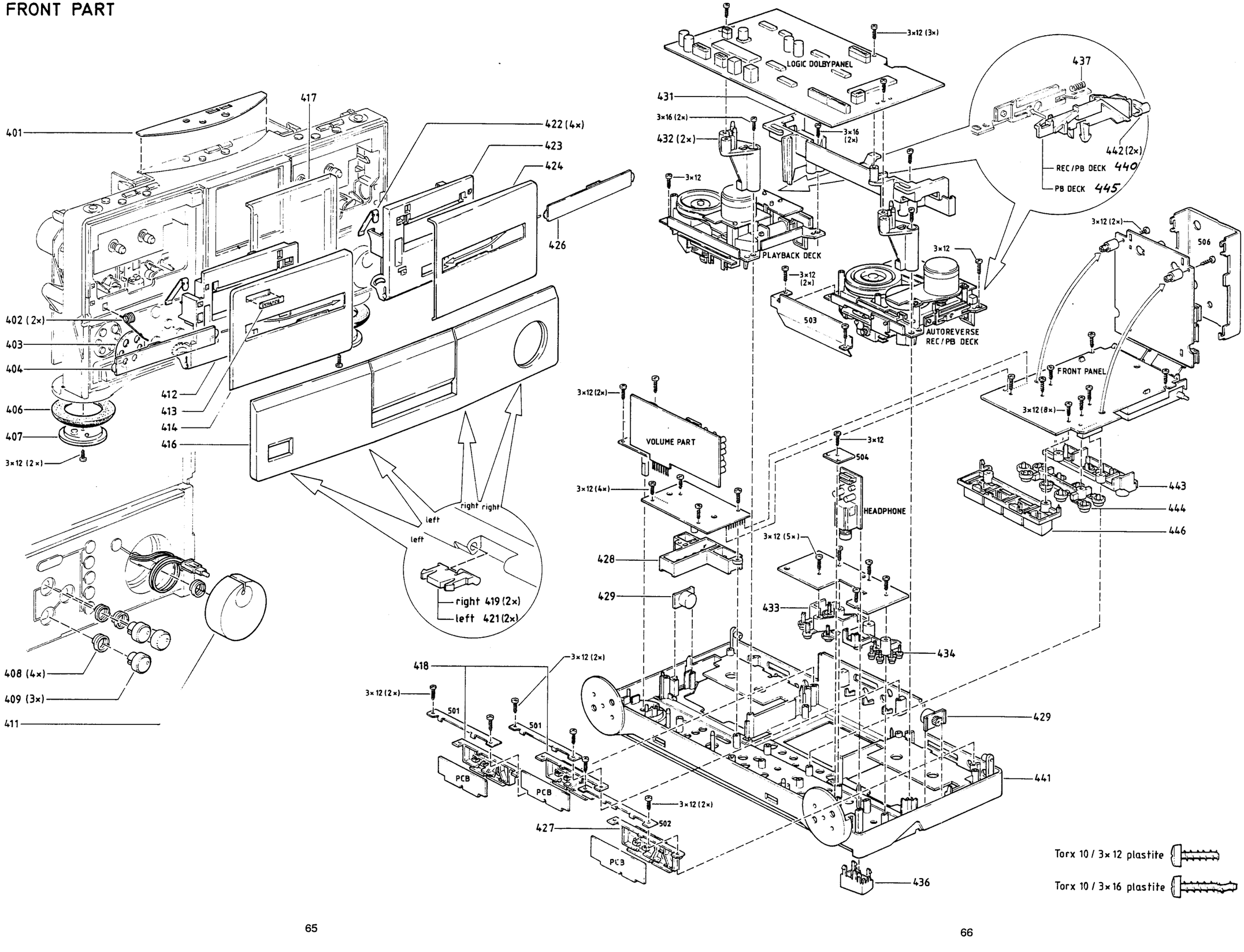
Dismantling of set

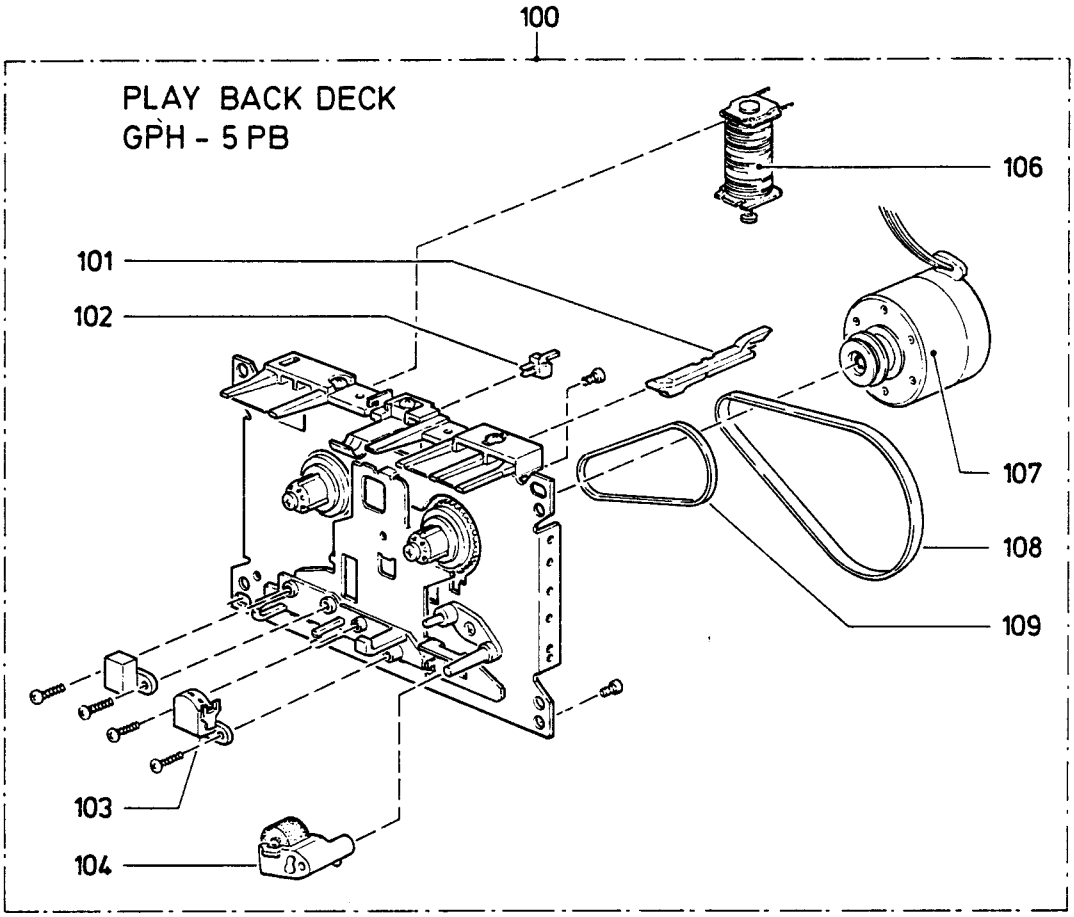


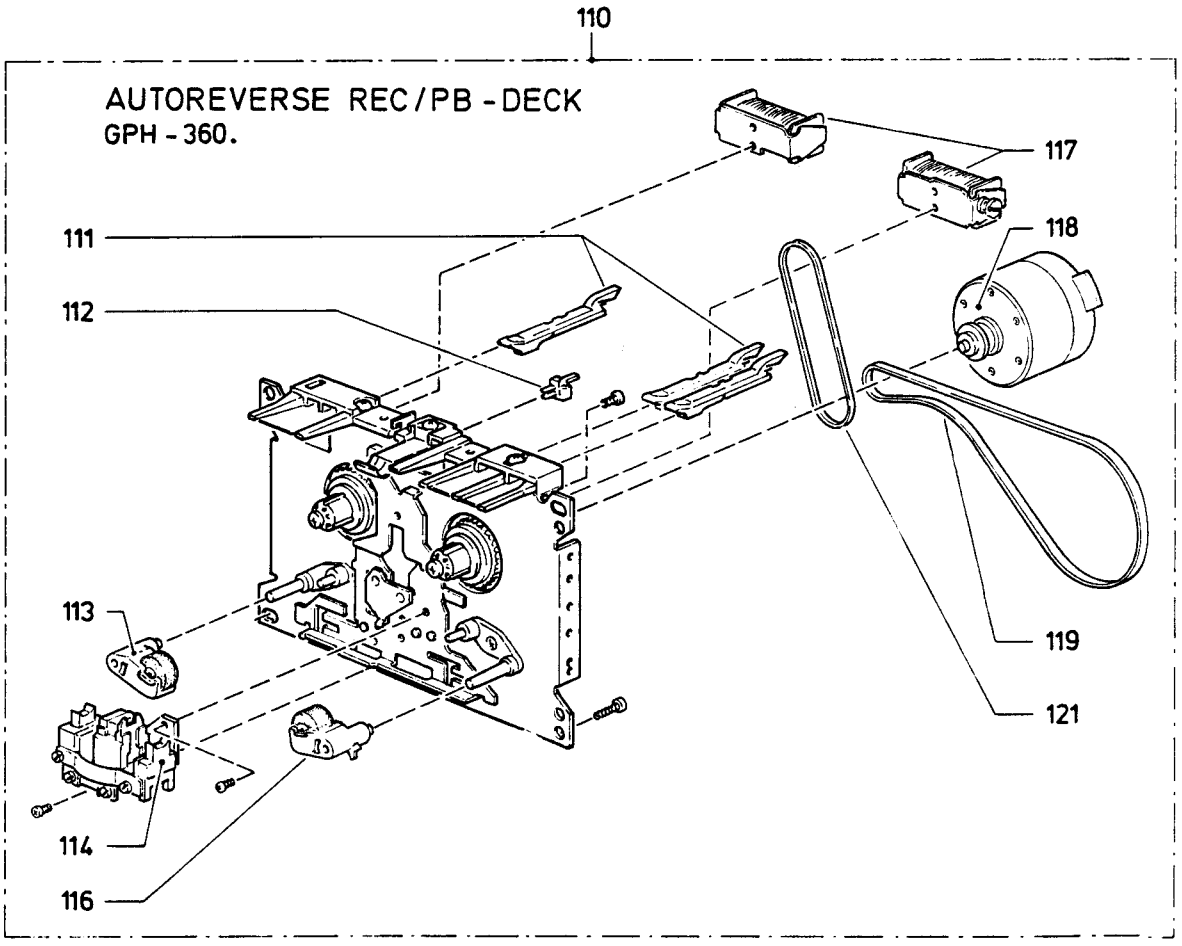
Torx 10 / 3 x 12 plastite

Torx 10 / 3 x 16 plastite

FRONT PART

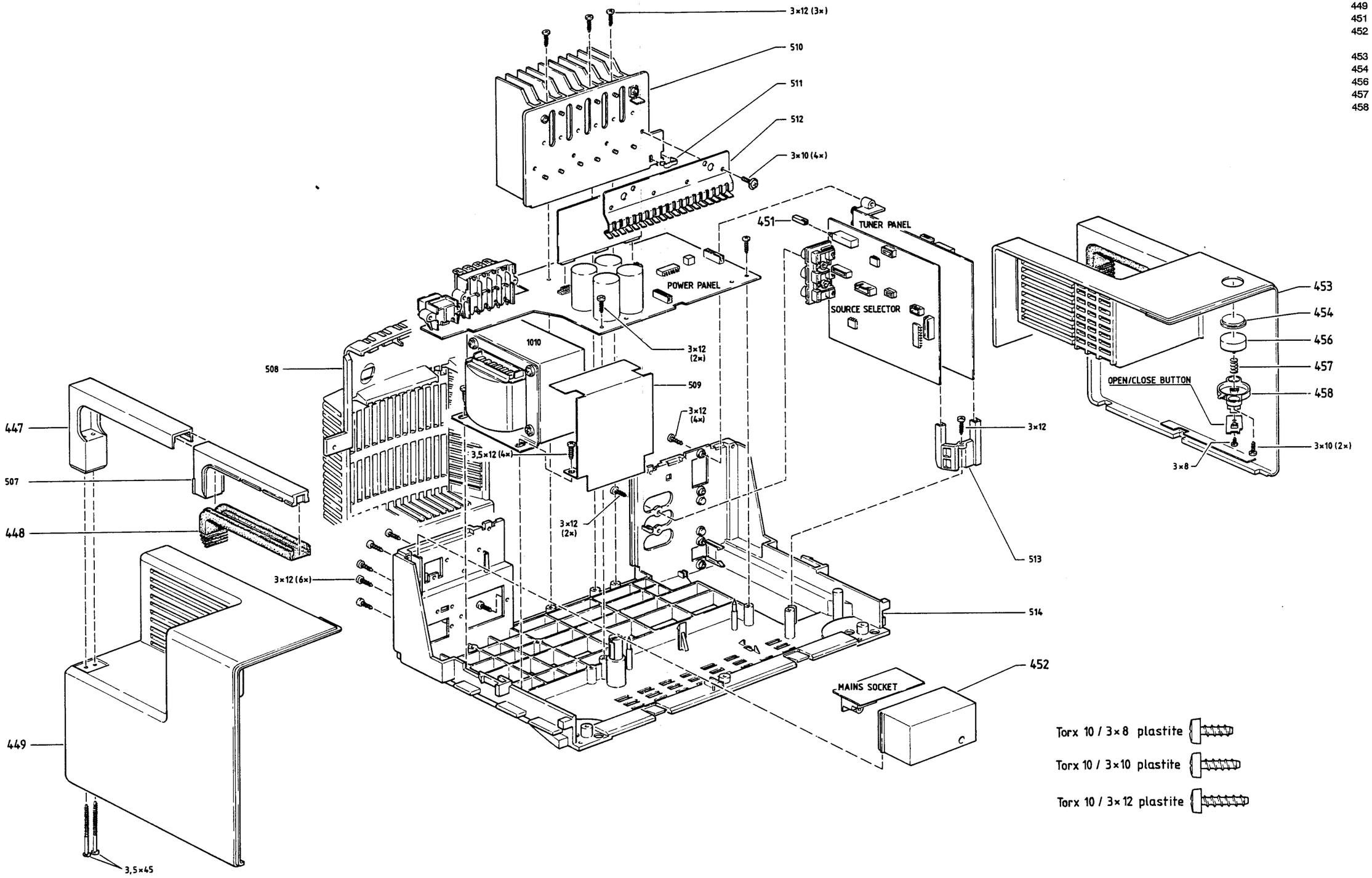

401
417
422 (4×)
423
424
426
402 (2×)
403
404
406
407
3×12 (2×)
412
413
414
416
408 (4×)
409 (3×)
411
left
left
right right
right 419 (2×)
left 421 (2×)
LOGIC DOLBY PANEL
3×12 (3×)
431
3×16 (2×)
432 (2×)
3×16 (2×)
3×12
PLAYBACK DECK
3×12 (2×)
503
3×12
AUTOREVERSE REC/PB DECK
437
442 (2×)
REC/PB DECK 440
PB DECK 445
3×12 (2×)
506
FRONT PANEL
3×12 (8×)
443
444
446
3×12 (2×)
VOLUME PART
3×12 (4×)
3×12
504
HEADPHONE
3×12 (5×)
428
429
433
434
418
3×12 (2×)
3×12 (2×)
501
501
PCB
PCB
3×12 (2×)
427
502
PCB
429
441
436
Torx 10 / 3×12 plastite
Torx 10 / 3×16 plastite


100
PLAY BACK DECK
GPH - 5 PB
106
101
102
107
108
109
103
104


110
AUTOREVERSE REC/PB - DECK
GPH - 360.
117
111
118
112
113
119
121
114
116

CABINET

447	4822 498 1042
448	4822 466 9303
449	4822 444 1015
451	4822 410 6029
452	not available
453	4822 444 1016
454	4822 410 6156
456	4822 413 7027
457	4822 492 5205
458	not available

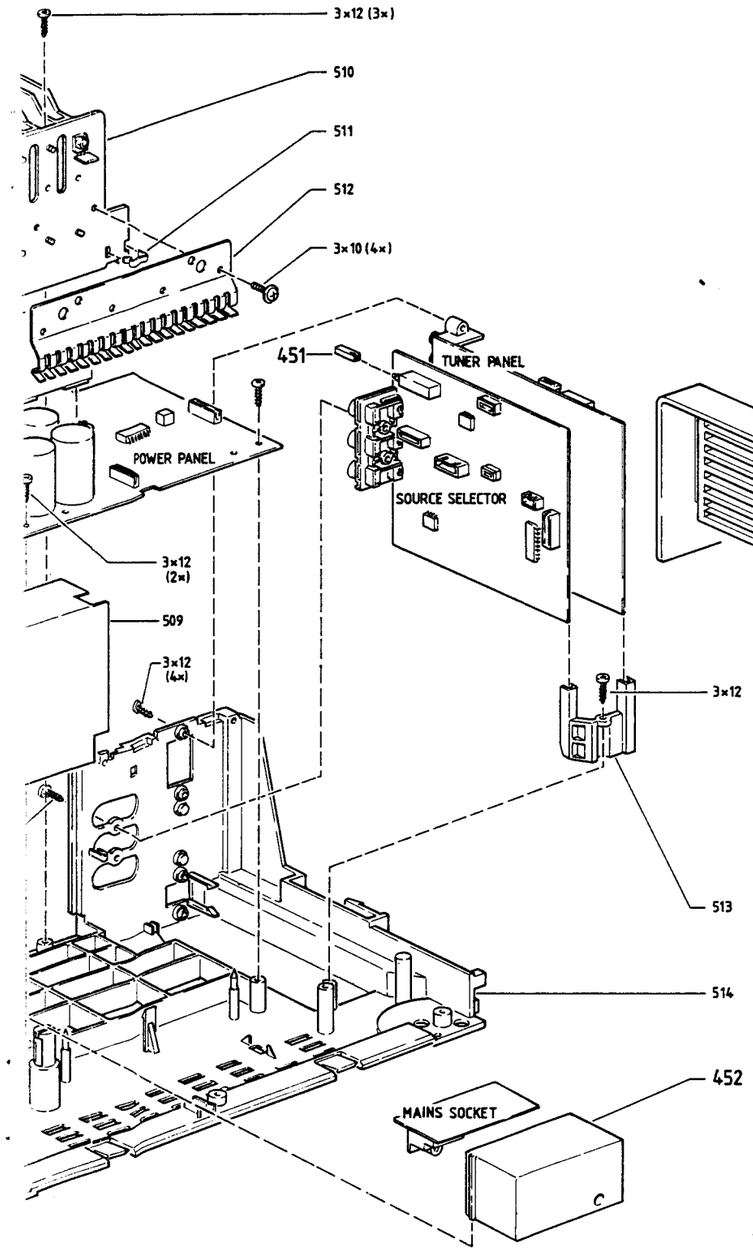


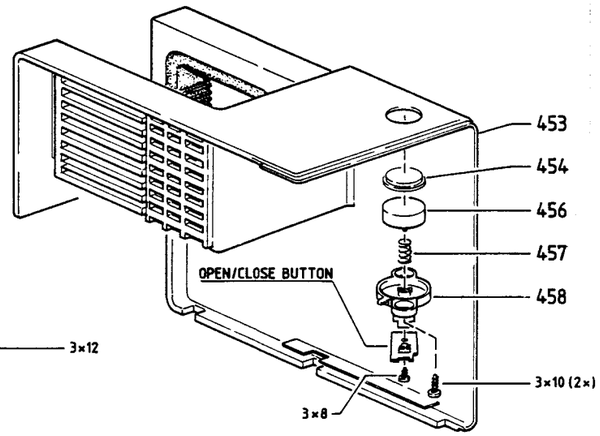
Torx 10 / 3×8 plastite

Torx 10 / 3×10 plastite

Torx 10 / 3×12 plastite

447	4822 498 10429	HANDLE ASSY
448	4822 466 93039	RUBBER FOR HANDLE
449	4822 444 10159	LEFT SIDE
451	4822 410 60294	PUSH BUTTON
452	not available	
453	4822 444 10161	RIGHT SIDE
454	4822 410 61564	OPEN CLOSE BUTTON
456	4822 413 70278	INSERT OPEN/CLOSE
457	4822 492 52057	SPRING
458	not available	





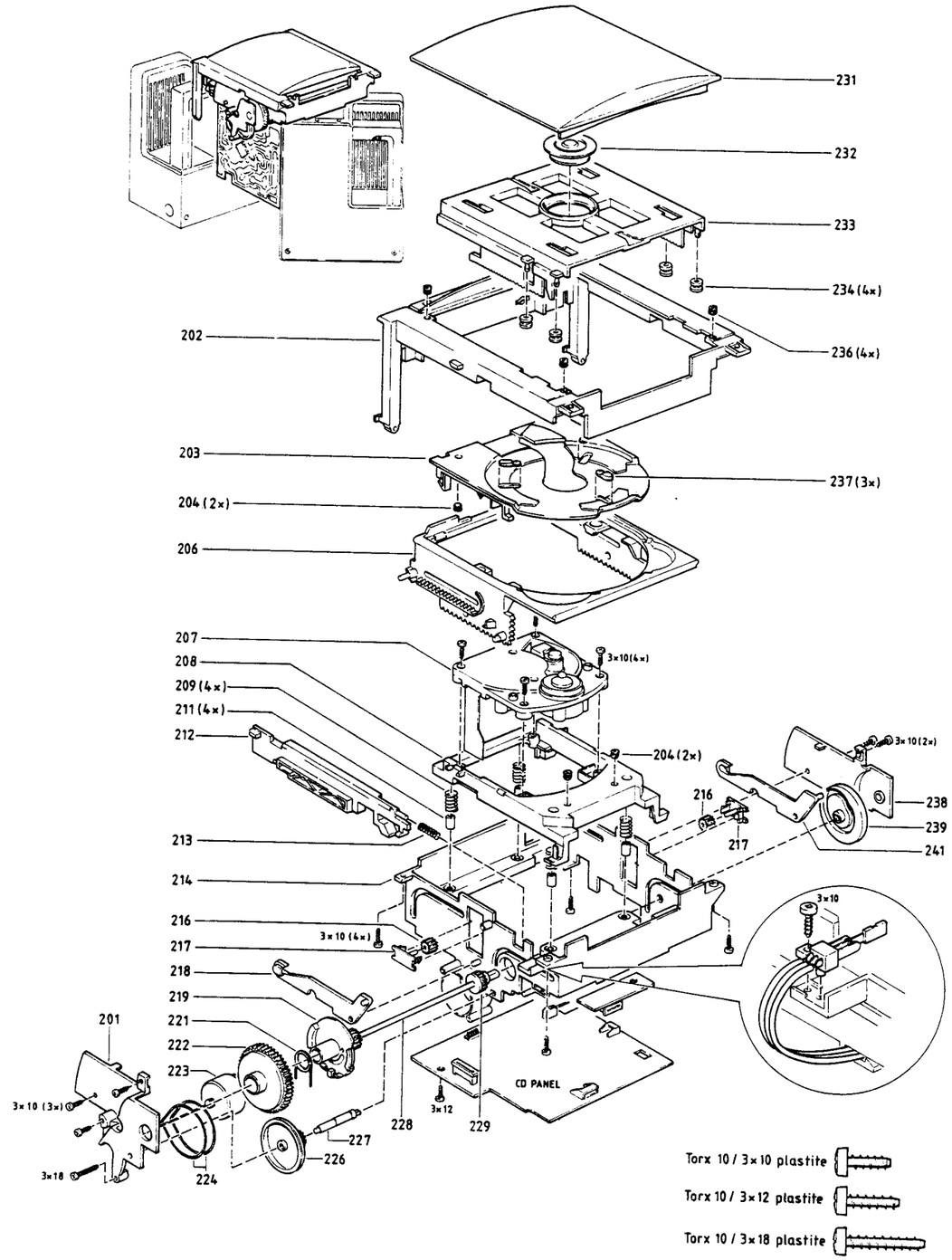
Torx 10 / 3×8 plastite

Torx 10 / 3×10 plastite

Torx 10 / 3×12 plastite

CD Unit

201	4822 462 71789	MOTOR HOUSING
202	4822 464 50873	MOUNTING FRAME
203	4822 444 50658	TRAY
204	4822 325 60317	TULE
206	4822 444 50657	DRAWER
207	4822 691 30229	CD-UNIT (CDM 4 MINI)
208	4822 402 61399	SUPPORT PIECE
209	4822 492 51902	COMPRESSION SPRING
211	4822 532 61168	SUSPENSION GROMMET
212	4822 402 61401	TRANSPORT BRACKET
213	4822 492 52273	COMPRESSION SPRING
214	4822 462 50467	FRAME LIFT
216	4822 522 33139	GEAR WHEEL
217	4822 462 30528	GUIDE PIECE
218	4822 462 50468	RACK LEFT
219	4822 522 33142	CLOSING GEAR
221	4822 492 70977	SPRING
222	4822 522 33143	DRIVING GEAR
223	4822 361 21353	MOTOR
224	4822 358 31154	BELT
226	4822 528 70764	IDLER WHEEL
227	4822 535 93264	PIN
228	4822 535 93263	SPINDLE
229	4822 522 33141	GEAR WHEEL
231	4822 444 60774	ORNAMENTAL COVER CD
232	4822 532 51871	PRESSURE RING ASSY
233	4822 444 30438	TECHNICAL COVER
234	4822 528 70765	ROLLER
236	4822 325 60317	TULE
237	4822 402 61398	SUPPORT
238	4822 402 61402	HOLDER
239	4822 528 90831	CLOSING DISC
241	4822 462 50469	RACK RIGHT



MISCELLANEOUS

1801	4822 361 21353	MOTOR
1802	4822 276 12525	SWITCH TACT

DIODES

6820	4822 130 30621	1N4148
6840	4822 130 30621	1N4148
6841	4822 130 30621	1N4148
6842	4822 130 30621	1N4148
6890	4822 130 34278	BZX79-C6V8

TRANSISTORS

7801	4822 130 42804	BC817-25 (CHIP)
7841	4822 130 42615	BC817-40 (CHIP)
7842	4822 130 42615	BC817-40 (CHIP)
7843	4822 130 42615	BC817-40 (CHIP)
7844	4822 130 42615	BC817-40 (CHIP)
7871	5322 130 41982	BC848 (CHIP)
7872	5322 130 41982	BC848 (CHIP)
7873	5322 130 42136	BC848C (CHIP)
7874	5322 130 42136	BC848C (CHIP)
7890	4822 130 40937	BC548B
7891	4822 130 44196	BC548C
7892	5322 130 60068	BC558C

INTEGRATED CIRCUITS

7810	4822 209 73234	TDA8808T/C3
7820	4822 209 73235	TDA8809T/C2
7821	4822 209 70705	L272MH
7822	4822 209 70705	L272MH
7840	4822 209 62112	M50423FP
7850	4822 209 70422	MN4264-15
7855	4822 209 62584	TDA1543A/M2/S2
7860	4822 209 80891	MC7805CT
7870	4822 209 83274	NJM4560D

COILS

5820	4822 157 62552	COIL 2,2µH
5821	4822 157 62552	COIL 2,2µH
5822	4822 157 62552	COIL 2,2µH
5823	4822 157 62552	COIL 2,2µH
5824	4822 157 62552	COIL 2,2µH
5830	4822 242 72565	RESONATOR 8,46MHz
5840	4822 157 50963	2,2µH
5841	4822 157 50963	2,2µH
5842	4822 242 73557	CERAMIC RES. 8,46MHz

RESISTORS

3801	4822 116 80562	10R	5%	NFR
3804	4822 100 11088	TRIMPOT 5k LIN		
3812	4822 116 52224	470R	5%	0,5W
3813	4822 052 10108	1R	5%	0,33W
3815	4822 116 80311	4,7R	5%	NFR
3816	4822 050 21501	150R	1%	0,6W
3825	4822 050 21502	1k5	1%	0,6W
3828	4822 050 25102	5,1k	1%	0,6W
3829	4822 050 25102	5,1k	1%	0,6W
3832	4822 050 23308	3,3R	1%	0,6W
3840	4822 100 11088	TRIMPOT 5k LIN		
3842	4822 116 52272	330k	5%	0,5W
3849	4822 050 21002	1k	1%	0,6W
3852	4822 050 24703	47k	1%	0,6W
3853	4822 050 22202	2k2	1%	0,6W
3854	4822 050 22202	2k2	1%	0,6W
3855	4822 050 22202	2k2	1%	0,6W
3856	4822 050 21002	1k	1%	0,6W
3859	4822 050 21204	120k	1%	0,6W
3860	4822 050 22205	2M2	1%	0,6W
3861	4822 050 21002	1k	1%	0,6W
3862	4822 116 80311	4,7R	5%	NFR
3863	4822 116 80311	4,7R	5%	NFR
3865	4822 116 80311	4,7R	5%	NFR
3883	4822 116 52217	270R	5%	0,5W
3884	4822 116 52217	270R	5%	0,5W
3885	4822 116 52217	270R	5%	0,5W
3892	4822 052 11688	6R8		

CHIP RESISTORS

3802	4822 051 20101	100R	5%	0,1W
3803	4822 051 10101	100R	2%	0,25W
3805	4822 051 20104	100k	5%	0,1W
3806	4822 051 20472	4k7	5%	0,1W
3807	4822 051 20272	2k7	5%	0,1W
3808	4822 051 10102	1k	2%	0,25W
3809	4822 051 20123	12k	2%	0,1W
3810	4822 051 20243	24k	2%	0,1W
3811	4822 051 20562	5k6	5%	0,1W
3817	4822 051 20473	47k	5%	0,1W
3818	4822 051 20153	15k	5%	0,1W
3819	4822 051 20123	12k	2%	0,1W
3820	4822 051 20224	220k	5%	0,1W
3821	4822 051 20562	5k6	5%	0,1W
3822	4822 051 20224	220k	5%	0,1W
3823	4822 051 20123	12k	2%	0,1W
3824	4822 051 20112	1k1	5%	0,1W
3826	4822 051 20392	3k9	5%	0,1W
3827	4822 051 20272	2k7	5%	0,1W
3830	4822 051 20391	390R	5%	0,1W
3831	4822 051 20339	33R	5%	0,1W
3833	4822 051 20391	390R	5%	0,1W
3834	4822 051 10102	1k	2%	0,25W
3835	4822 051 10102	1k	2%	0,25W
3841	4822 051 20183	18k	5%	0,1W
3843	4822 051 20222	2k2	5%	0,1W
3844	4822 051 20823	82k	5%	0,1W
3845	4822 051 20303	30k	5%	0,1W
3846	4822 051 20303	30k	5%	0,1W
3847	4822 051 20823	82k	5%	0,1W
3848	4822 051 10102	1k	2%	0,25W
3850	4822 051 20229	22R	5%	0,1W
3851	4822 051 20229	22R	5%	0,1W
3857	4822 051 20222	2k2	5%	0,1W
3858	4822 051 20223	22k	5%	0,1W

CHIP RESISTORS

3866	4822 051 10101	100R	2%	0,25W
3868	4822 051 20272	2k7	5%	0,1W
3869	4822 051 20272	2k7	5%	0,1W
3870	4822 051 20473	47k	5%	0,1W
3871	4822 051 20473	47k	5%	0,1W
3872	4822 051 10102	1k	2%	0,25W
3873	4822 051 10102	1k	2%	0,25W
3874	4822 051 20103	10k	5%	0,1W
3875	4822 051 20103	10k	5%	0,1W
3876	4822 051 20471	470R	5%	0,1W
3877	4822 051 20471	470R	5%	0,1W
3878	4822 051 10102	1k	2%	0,25W
3879	4822 051 10102	1k	2%	0,25W
3880	4822 051 20472	4k7	5%	0,1W
3881	4822 051 20472	4k7	5%	0,1W
3886	4822 051 20331	330R	5%	0,1W
3887	4822 051 20472	4k7	5%	0,1W
3888	4822 051 20152	1k5	5%	0,1W
3889	4822 051 20103	10k	5%	0,1W
3890	4822 051 20223	22k	5%	0,1W
3891	4822 051 20223	22k	5%	0,1W
3893	4822 051 10182	1k8	2%	0,25W
3894	4822 051 10182	1k8	2%	0,25W
3895	4822 051 10182	1k8	2%	0,25W
3896	4822 051 10182	1k8	2%	0,25W
3899	4822 051 20223	22k	5%	0,1W
3900	4822 051 20105	1M	5%	0,1W

CAPACITORS

2801	4822 124 40433	47µF	20%	25V
2803	4822 121 51252	470nF	5%	63V
2807	4822 121 43526	47nF	5%	100V
2809	4822 122 31746	1nF	5%	50V
2811	4822 124 40433	47µF	20%	25V
2813	4822 124 40433	47µF	20%	25V
2816	4822 124 41643	100µF	20%	16V
2817	4822 121 43898	8,2nF	5%	250V
2818	4822 121 43898	8,2nF	5%	250V
2819	4822 122 31746	1nF	5%	50V
2824	5322 121 42661	330nF	5%	63V
2825	4822 124 40178	100µF	20%	10V
2826	5322 121 42498	680nF	5%	63V
2828	5322 121 42498	680nF	5%	63V
2832	5322 121 42498	680nF	5%	63V
2840	4822 122 10175	2,2nF	10%	50V
2844	4822 121 51356	180nF	10%	63V
2845	4822 124 40178	100µF	20%	10V
2849	4822 124 40242	1µF	20%	63V
2851	4822 124 41643	100µF	20%	16V
2860	4822 124 40433	47µF	20%	25V
2861	4822 124 41554	220µF	20%	10V
2863	4822 124 40196	220µF	20%	16V
2866	4822 124 40242	1µF	20%	63V
2867	4822 124 40242	1µF	20%	63V
2870	4822 122 31746	1nF	5%	50V
2871	4822 122 31746	1nF	5%	50V
2890	4822 124 40435	10µF	20%	50V
2891	4822 124 41643	100µF	20%	16V

CHIP CAPACITORS

2802	4822 122 31965	220pF	5%	
2804	4822 122 31727	470pF	5%	63V
2805	4822 122 32542	47nF	10%	63V
2806	4822 122 32442	10nF	10%	50V
2808	4822 122 32542	47nF	10%	63V
2810	4822 122 32927	220nF	10%	63V
2812	4822 122 31644	2,2nF	10%	63V
2814	4822 122 32542	47nF	10%	63V
2815	4822 122 32542	47nF	10%	63V
2820	4822 122 31981	33nF	10%	50V
2821	4822 122 31981	33nF	10%	50V
2822	4822 122 32927	220nF	10%	63V
2823	4822 122 32927	220nF	10%	63V
2827	4822 122 31797	22nF	10%	63V
2829	4822 122 32442	10nF	10%	50V
2830	4822 122 32442	10nF	10%	50V
2831	4822 122 32442	10nF	10%	50V
2833	4822 122 32891	68nF	10%	63V
2835	4822 122 32542	47nF	10%	63V
2837	4822 122 31772	47pF		
2838	4822 122 31772	47pF		
2839	4822 122 31772	47pF		
2841	4822 122 31772	47pF		
2842	4822 122 31727	470pF	5%	63V
2843	4822 122 32442	10nF	10%	50V
2846	4822 122 31797	22nF	10%	63V
2847	4822 122 32442	10nF	10%	50V
2848	4822 122 33496	100nF	10%	63V
2850	4822 122 32442	10nF	10%	50V
2862	4822 122 32542	47nF	10%	63V
2864	5322 126 10328	1,5nF	5%	63V
2865	5322 126 10328	1,5nF	5%	63V
2868	4822 122 31981	33nF	10%	50V
2869	4822 122 31981	33nF	10%	50V
2872	4822 122 31765	100pF	5%	50V
2873	4822 122 31765	100pF	5%	50V
2898	4822 122 33496	100nF	10%	63V
2899	4822 122 31727	470pF	5%	63V

MISCELLANEOUS

1400	4822 130 91035	DISPLAY (FTD)
1401	4822 276 13066	TACT SWITCH
1402	4822 276 13066	TACT SWITCH
1403	4822 276 13066	TACT SWITCH
1404	4822 276 13066	TACT SWITCH
1405	4822 276 13066	TACT SWITCH
1406	4822 276 13066	TACT SWITCH
1407	4822 276 13066	TACT SWITCH
1408	4822 276 13066	TACT SWITCH
1409	4822 276 13066	TACT SWITCH
1410	4822 276 13066	TACT SWITCH
1411	4822 276 13066	TACT SWITCH
1412	4822 276 13066	TACT SWITCH
1413	4822 276 13066	TACT SWITCH
1414	4822 276 13066	TACT SWITCH
1415	4822 276 13066	TACT SWITCH
1416	4822 276 13066	TACT SWITCH
1417	4822 276 13066	TACT SWITCH
1418	4822 276 13066	TACT SWITCH
1419	4822 276 13066	TACT SWITCH
1420	4822 276 13066	TACT SWITCH
1421	4822 276 13066	TACT SWITCH
1422	4822 276 13066	TACT SWITCH
1423	4822 276 13066	TACT SWITCH
1424	4822 276 13066	TACT SWITCH
1425	4822 276 13066	TACT SWITCH
1426	4822 276 13066	TACT SWITCH
1427	4822 276 13066	TACT SWITCH
1428	4822 276 13066	TACT SWITCH
1429	4822 276 13066	TACT SWITCH
1430	4822 276 13066	TACT SWITCH
1431	4822 276 13066	TACT SWITCH
1432	4822 276 13066	TACT SWITCH
1433	4822 276 13066	TACT SWITCH
1434	4822 276 13066	TACT SWITCH
1435	4822 276 13066	TACT SWITCH
1436	4822 276 13066	TACT SWITCH
1437	4822 276 13066	TACT SWITCH

DIODES

6400	4822 130 81254	IR-EYE
6401	4822 130 30621	1N4148
6402	4822 130 30621	1N4148
6403	4822 130 30621	1N4148
6404	4822 130 30621	1N4148
6405	5322 130 31928	BAS16
6405	5322 130 31928	BAS16
6406	5322 130 31928	BAS16
6406	5322 130 31928	BAS16
6407	5322 130 31928	BAS16
6407	5322 130 31928	BAS16
6408	5322 130 31928	BAS16
6408	5322 130 31928	BAS16
6409	5322 130 31928	BAS16
6409	5322 130 31928	BAS16
6410	5322 130 31928	BAS16
6410	5322 130 31928	BAS16
6411	5322 130 31928	BAS16
6411	5322 130 31928	BAS16
6412	5322 130 31928	BAS16
6412	5322 130 31928	BAS16
6413	5322 130 31928	BAS16
6413	5322 130 31928	BAS16
6414	5322 130 31928	BAS16
6414	5322 130 31928	BAS16
6415	4822 130 30621	1N4148
6416	4822 130 30621	1N4148
6417	5322 130 31928	BAS16
6417	5322 130 31928	BAS16
6418	5322 130 31928	BAS16
6418	5322 130 31928	BAS16
6419	5322 130 31928	BAS16
6419	5322 130 31928	BAS16
6420	4822 130 30621	1N4148
6451	4822 130 34173	BZX79-C5V6
6452	4822 130 30621	1N4148
6453	4822 130 30621	1N4148
6456	5322 130 31928	BAS16
6456	5322 130 31928	BAS16
6457	4822 130 34382	BZX79-C8V2
6458	4822 130 32245	BYV10-40
6459	4822 130 80235	BZX79-C3V3
6460	4822 130 30621	1N4148
6461	5322 130 31928	BAS16
6461	5322 130 31928	BAS16
6462	4822 130 34174	BZX79-C4V7
6463	4822 130 34488	BZX79-C11

TRANSISTORS

7421	5322 130 41982	BC848 (CHIP)
7424	4822 130 60511	BC847B
7425	4822 130 60511	BC847B
7426	4822 130 60511	BC847B
7427	4822 130 60511	BC847B
7428	4822 130 60511	BC847B
7451	5322 130 44779	BC338-40
7452	5322 130 44779	BC338-40
7453	4822 130 41715	BC328-40
7454	4822 130 41715	BC328-40
7455	4822 130 40937	BC548B
7456	4822 130 40937	BC548B
7457	4822 130 40937	BC548B
7458	4822 130 40937	BC548B
7459	4822 130 44197	BC558B
7460	4822 130 61236	BD234
7461	5322 130 41982	BC848 (CHIP)
7462	5322 130 42012	BC858 (CHIP)
7463	5322 130 44779	BC338-40
7464	5322 130 41982	BC848 (CHIP)
7465	5322 130 41983	BC858B (CHIP)
7466	5322 130 41982	BC848 (CHIP)
7467	5322 130 41982	BC848 (CHIP)
7468	4822 130 40937	BC548B
7469	4822 130 40937	BC548B
7470	4822 130 40937	BC548B
7471	4822 130 44197	BC558B
7472	4822 130 40982	BD433

INTEGRATED CIRCUITS

7400	4822 209 61728	TMP47C1670N
7401	5322 209 63719	ST24C02
7402	4822 209 62113	PC74HCT164T
7403	4822 209 62113	PC74HCT164T
7404	5322 209 11306	HEF4094BT
7405	5322 209 11306	HEF4094BT

COILS

5401	4822 242 81002	RESONATOR 6,0MHz
5402	4822 242 70938	CRYSTAL 32,768kHz
5403	4822 156 21452	100µH

RESISTORS

3407	4822 050 21002	1k	1%	0,6W
3426	4822 050 21003	10k	2%	0,25W
3427	4822 050 21003	10k	2%	0,25W
3428	4822 050 21003	10k	2%	0,25W
3429	4822 050 21003	10k	2%	0,25W
3430	4822 050 21003	10k	2%	0,25W
3431	4822 050 21003	10k	2%	0,25W
3432	4822 050 21003	10k	2%	0,25W
3433	4822 050 21003	10k	2%	0,25W
3434	4822 050 21003	10k	2%	0,25W
3435	4822 050 21003	10k	2%	0,25W
3451	4822 050 24702	4k7	1%	0,6W
3453	4822 052 10129	12R	5%	0,33W
3455	4822 050 24702	4k7	1%	0,6W
3456	4822 050 21002	1k	1%	0,6W
3457	4822 050 21002	1k	1%	0,6W
3458	4822 116 52234	100k	5%	0,5W
3459	4822 050 21003	10k	2%	0,25W
3460	4822 116 52224	470R	5%	0,5W
3462	4822 050 21003	10k	2%	0,25W
3463	4822 050 21002	1k	1%	0,6W
3464	4822 050 21003	10k	2%	0,25W
3467	4822 050 21003	10k	2%	0,25W
3468	4822 050 23302	3k3	1%	0,6W
3469	4822 050 23302	3k3	1%	0,6W
3471	4822 116 52224	470R	5%	0,5W
3472	4822 116 80311	4,7R	5%	NFR
3473	4822 050 26801	680R	1%	0,6W
3474	4822 052 10108	1R	5%	0,33W
3476	4822 050 21002	1k	1%	0,6W
3477	4822 050 21002	1k	1%	0,6W
3481	4822 116 52191	33R	5%	0,5W
3484	4822 050 21002	1k	1%	0,6W
3489	4822 050 21003	10k	2%	0,25W
3491	4822 116 80562	10R	5%	NFR
3492	4822 050 21003	10k	2%	0,25W
3498	4822 050 21002	1k	1%	0,6W
3499	4822 050 21002	1k	1%	0,6W

CHIP RESISTORS

3401	4822 051 10102	1k	2%	0,25W
3402	4822 051 20331	330R	5%	0,1W
3403	4822 051 20103	10k	5%	0,1W
3404	4822 051 20103	10k	5%	0,1W
3405	4822 051 10102	1k	2%	0,25W
3406	4822 051 10102	1k	2%	0,25W
3408	4822 051 10102	1k	2%	0,25W
3409	4822 051 20222	2k2	5%	0,1W
3410	4822 051 10102	1k	2%	0,25W
3411	4822 051 20332	3k3	5%	0,1W
3412	4822 051 20332	3k3	5%	0,1W
3413	4822 051 20103	10k	5%	0,1W
3414	4822 051 20103	10k	5%	0,1W
3415	4822 051 20103	10k	5%	0,1W
3416	4822 051 20391	390R	5%	0,1W
3417	4822 051 20103	10k	5%	0,1W
3418	4822 051 20103	10k	5%	0,1W
3419	4822 051 20103	10k	5%	0,1W
3420	4822 051 20103	10k	5%	0,1W
3421	4822 051 20103	10k	5%	0,1W
3422	4822 051 20222	2k2	5%	0,1W
3423	4822 051 20222	2k2	5%	0,1W
3424	4822 051 20222	2k2	5%	0,1W
3425	4822 051 20103	10k	5%	0,1W
3436	4822 051 20103	10k	5%	0,1W
3437	4822 051 20103	10k	5%	0,1W
3438	4822 051 20103	10k	5%	0,1W
3439	4822 051 20103	10k	5%	0,1W
3440	4822 051 20103	10k	5%	0,1W
3441	4822 051 20103	10k	5%	0,1W
3442	4822 051 20103	10k	5%	0,1W
3443	4822 051 20681	680R	5%	0,1W
3444	4822 051 20681	680R	5%	0,1W
3445	4822 051 20681	680R	5%	0,1W
3446	4822 051 20681	680R	5%	0,1W
3450	4822 051 10102	1k	2%	0,25W
3452	4822 051 10102	1k	2%	0,25W
3454	4822 051 10102	1k	2%	0,25W
3461	4822 051 10102	1k	2%	0,25W
3466	4822 051 20103	10k	5%	0,1W
3475	4822 051 10102	1k	2%	0,25W
3478	4822 051 20472	4k7	5%	0,1W
3479	4822 051 20123	12k	2%	0,1W
3480	4822 051 20104	100k	5%	0,1W
3482	4822 051 20103	10k	5%	0,1W
3483	4822 051 20562	5k6	5%	0,1W
3485	4822 051 20683	68k	5%	0,1W
3486	4822 051 20333	33k	5%	0,1W
3487	4822 051 20103	10k	5%	0,1W
3488	4822 051 20472	4k7	5%	0,1W
3490	4822 051 10561	560R	2%	0,25W
3493	4822 051 20103	10k	5%	0,1W
3494	4822 051 20103	10k	5%	0,1W
3495	4822 051 20103	10k	5%	0,1W
3496	4822 051 20103	10k	5%	0,1W
3497	4822 051 20103	10k	5%	0,1W
3901	4822 051 20008	CHIP JUMPER		
3902	4822 051 20008	CHIP JUMPER		
3903	4822 051 20008	CHIP JUMPER		
3904	4822 051 20008	CHIP JUMPER		
3905	4822 051 20008	CHIP JUMPER		
3906	4822 051 20008	CHIP JUMPER		

CHIP RESISTORS

3907	4822 051 20008	CHIP JUMPER
3908	4822 051 20008	CHIP JUMPER
3909	4822 051 20008	CHIP JUMPER
3910	4822 051 20008	CHIP JUMPER
3911	4822 051 20008	CHIP JUMPER
3912	4822 051 20008	CHIP JUMPER
3913	4822 051 20008	CHIP JUMPER
3914	4822 051 20008	CHIP JUMPER
3915	4822 051 20008	CHIP JUMPER
3916	4822 051 20008	CHIP JUMPER
3917	4822 051 20008	CHIP JUMPER
3918	4822 051 20008	CHIP JUMPER
3919	4822 051 20008	CHIP JUMPER
3920	4822 051 20008	CHIP JUMPER
3921	4822 051 20008	CHIP JUMPER
3922	4822 051 20008	CHIP JUMPER
3923	4822 051 20008	CHIP JUMPER
3924	4822 051 20008	CHIP JUMPER
3925	4822 051 20008	CHIP JUMPER
3926	4822 051 20008	CHIP JUMPER
3927	4822 051 20008	CHIP JUMPER
3928	4822 051 20008	CHIP JUMPER
3929	4822 051 20008	CHIP JUMPER
3930	4822 051 20008	CHIP JUMPER
3931	4822 051 20008	CHIP JUMPER
3932	4822 051 20008	CHIP JUMPER

CAPACITORS

2406	4822 126 11313	22nF	10%	25V
2407	4822 122 10166	22nF	30%	16V
2408	4822 124 40178	100µF	20%	10V
2426	4822 122 10183	100pF	5%	50V
2427	4822 122 10183	100pF	5%	50V
2428	4822 122 10183	100pF	5%	50V
2430	4822 122 10183	100pF	5%	50V
2431	4822 122 10183	100pF	5%	50V
2432	4822 122 10183	100pF	5%	50V
2441	4822 122 10183	100pF	5%	50V
2444	4822 122 10183	100pF	5%	50V
2453	4822 124 40196	220µF	20%	16V
2454	4822 124 40435	10µF	20%	50V
2455	4822 124 41643	100µF	20%	16V
2456	4822 124 40244	2,2µF	20%	63V
2461	4822 124 40433	47µF	20%	25V
2462	4822 122 31746	1nF	5%	50V
2464	4822 124 40433	47µF	20%	25V
2465	4822 124 40196	220µF	20%	16V
2466	4822 124 22263	220µF	20%	25V
2467	4822 124 42313	47mF	20%	5,5V
2468	4822 124 41643	100µF	20%	16V
2470	4822 122 31746	1nF	5%	50V
2471	4822 122 31746	1nF	5%	50V
2472	4822 122 31746	1nF	5%	50V
2473	4822 122 31746	1nF	5%	50V
2479	4822 122 10183	100pF	5%	50V
2480	4822 122 31746	1nF	5%	50V
2481	4822 122 31746	1nF	5%	50V
2482	4822 122 31746	1nF	5%	50V
2483	4822 122 31746	1nF	5%	50V
2485	4822 122 31746	1nF	5%	50V
2486	4822 122 31746	1nF	5%	50V
2487	4822 122 31746	1nF	5%	50V
2488	4822 122 31746	1nF	5%	50V
2489	4822 122 31746	1nF	5%	50V
2492	5322 121 42498	680nF	5%	63V
2493	4822 122 31746	1nF	5%	50V
2494	4822 122 31746	1nF	5%	50V

CHIP CAPACITORS

2402	4822 122 32482	22pF	5%	63V
2403	4822 122 32482	22pF	5%	63V
2404	4822 122 31797	22nF	10%	63V
2409	4822 122 31797	22nF	10%	63V
2410	4822 122 32927	220nF	10%	63V
2412	4822 122 31797	22nF	10%	63V
2421	4822 122 31765	100pF	5%	50V
2422	4822 122 31765	100pF	5%	50V
2423	4822 122 31765	100pF	5%	50V
2424	4822 122 31765	100pF	5%	50V
2425	4822 122 31765	100pF	5%	50V
2429	4822 122 31765	100pF	5%	50V
2433	4822 122 31765	100pF	5%	50V
2434	4822 122 31765	100pF	5%	50V
2435	4822 122 31765	100pF	5%	50V
2436	4822 122 31765	100pF	5%	50V
2437	4822 122 31765	100pF	5%	50V
2438	4822 122 31765	100pF	5%	50V
2439	4822 122 31765	100pF	5%	50V
2440	4822 122 31765	100pF	5%	50V
2442	4822 122 31765	100pF	5%	50V
2443	4822 122 31765	100pF	5%	50V
2445	4822 122 31765	100pF	5%	50V
2446	4822 122 31765	100pF	5%	50V
2447	4822 122 31765	100pF	5%	50V
2448	4822 122 31765	100pF	5%	50V
2449	4822 122 31961	68pF	5%	63V
2450	4822 122 31765	100pF	5%	50V
2451	4822 122 32442	10nF	10%	50V
2452	4822 122 33496	100nF	10%	63V
2457	4822 122 31797	22nF	10%	63V
2463	4822 122 31797	22nF	10%	63V
2469	4822 122 31765	100pF	5%	50V
2474	4822 122 31765	100pF	5%	50V
2475	4822 122 31765	100pF	5%	50V
2476	4822 122 31765	100pF	5%	50V
2477	4822 122 31765	100pF	5%	50V
2478	4822 122 31765	100pF	5%	50V
2490	4822 122 33496	100nF	10%	63V
2491	4822 122 33496	100nF	10%	63V

DIODES

6406	4822 130 30621	1N4148
6407	4822 130 30621	1N4148
6408	4822 130 30621	1N4148
6409	4822 130 30621	1N4148
6410	4822 130 30621	1N4148
6412	4822 130 30621	1N4148
6413	4822 130 30621	1N4148
6415	4822 130 30621	1N4148
6416	4822 130 30621	1N4148
6417	4822 130 30621	1N4148
6701	4822 130 30621	1N4148
6702	4822 130 30621	1N4148
6703	5322 130 34563	BZX79-C2V7
6704	4822 130 30621	1N4148
6705	4822 130 30621	1N4148
6791	4822 130 34488	BZX79-C11

TRANSISTORS

7405	5322 130 41983	BC858B (CHIP)
7406	5322 130 41983	BC858B (CHIP)
7407	5322 130 41982	BC848 (CHIP)
7408	5322 130 44779	BC338-40
7409	5322 130 44779	BC338-40
7410	5322 130 44779	BC338-40
7411	5322 130 44779	BC338-40
7412	5322 130 44779	BC338-40
7413	5322 130 41982	BC848 (CHIP)
7414	5322 130 41982	BC848 (CHIP)
7416	5322 130 41982	BC848 (CHIP)
7417	5322 130 41982	BC848 (CHIP)
7418	5322 130 41982	BC848 (CHIP)
7419	5322 130 41982	BC848 (CHIP)
7420	5322 130 41982	BC848 (CHIP)
7654	5322 130 44779	BC338-40
7655	5322 130 44779	BC338-40
7705	5322 130 41982	BC848 (CHIP)
7708	5322 130 41982	BC848 (CHIP)
7709	5322 130 41982	BC848 (CHIP)
7710	5322 130 41982	BC848 (CHIP)
7791	5322 130 41982	BC848 (CHIP)
7792	5322 130 41982	BC848 (CHIP)

INTEGRATED CIRCUITS

7401	4822 209 80891	MC7805CT
7402	4822 209 30559	µP (MC88HC05C)
7651	4822 209 72749	CXA1100P
7652	4822 209 83274	NJM4560D
7653	4822 209 71636	TC4016BP
7656	4822 209 71636	TC4016BP
7701	4822 209 62372	TDA1602A/N3
7702	5322 209 86327	N7406N
7704	4822 209 71636	TC4016BP

COILS

5401	4822 242 72567	FRC4,0MCT
5651	4822 242 73768	MPX-FILTER
5652	4822 242 73768	MPX-FILTER
5653	4822 156 20811	COIL 36µH
5654	4822 156 20811	COIL 36µH
5701	4822 156 20811	COIL 36µH
5702	4822 156 20811	COIL 36µH
5703	4822 156 20946	OSC.COIL 100kHz

RESISTORS

3401	4822 052 10229	22R	5%	0,33W
3402	4822 116 80311	4,7R	5%	NFR
3414	4822 050 24703	47k	1%	0,6W
3423	4822 116 52263	2k7	5%	0,5W
3425	4822 050 21501	150R	1%	0,6W
3426	4822 100 11348	1k POTMETER		
3427	4822 050 15602	5k6	1%	0,4W
3428	4822 100 11391	330R POTMETER		
3430	4822 100 11391	330R POTMETER		
3431	4822 116 52234	100k	5%	0,5W
3432	4822 116 52234	100k	5%	0,5W
3433	4822 050 22202	2k2	1%	0,6W
3434	4822 050 22204	220k	1%	0,6W
3435	4822 116 52234	100k	5%	0,5W
3436	4822 050 21201	120R	1%	0,6W
3437	4822 050 21002	1k	1%	0,6W
3438	4822 050 21201	120R	1%	0,6W
3439	4822 050 21002	1k	1%	0,6W
3440	4822 050 21002	1k	1%	0,6W
3441	4822 050 22203	22k	1%	0,6W
3442	4822 050 22203	22k	1%	0,6W
3443	4822 050 22203	22k	1%	0,6W
3444	4822 050 22203	22k	1%	0,6W
3445	4822 050 22203	22k	1%	0,6W
3446	4822 050 22203	22k	1%	0,6W
3447	4822 050 21502	1k5	1%	0,6W
3454	4822 050 21003	10k	2%	0,25W
3651	4822 116 52224	470R	5%	0,5W
3652	4822 116 52224	470R	5%	0,5W
3653	4822 050 24703	47k	1%	0,6W
3654	4822 050 24703	47k	1%	0,6W
3655	4822 050 21002	1k	1%	0,6W
3656	4822 050 21002	1k	1%	0,6W
3657	4822 050 21204	120k	1%	0,6W
3658	4822 050 21204	120k	1%	0,6W
3659	4822 050 23302	3k3	1%	0,6W
3660	4822 050 23302	3k3	1%	0,6W
3661	4822 050 15602	5k6	1%	0,4W
3662	4822 050 15602	5k6	1%	0,4W
3663	4822 050 21002	1k	1%	0,6W
3664	4822 050 21002	1k	1%	0,6W
3665	4822 050 21002	1k	1%	0,6W
3666	4822 050 21002	1k	1%	0,6W
3667	4822 050 24303	43k	1%	0,6W
3668	4822 052 10229	22R	5%	0,33W
3673	4822 050 21003	10k	2%	0,25W
3674	4822 050 21003	10k	2%	0,25W
3675	4822 050 21002	1k	1%	0,6W
3676	4822 050 21002	1k	1%	0,6W
3677	4822 116 52234	100k	5%	0,5W
3678	4822 116 52234	100k	5%	0,5W
3679	4822 116 52263	2k7	5%	0,5W

RESISTORS

3680	4822 116 52263	2k7	5%	0,5W
3681	4822 050 24703	47k	1%	0,6W
3682	4822 050 24703	47k	1%	0,6W
3683	4822 116 52244	15k	5%	0,5W
3684	4822 116 52244	15k	5%	0,5W
3685	4822 116 52303	8k2	5%	0,5W
3686	4822 116 52303	8k2	5%	0,5W
3689	4822 116 52263	2k7	5%	0,5W
3690	4822 116 52263	2k7	5%	0,5W
3691	4822 050 15602	5k6	1%	0,4W
3692	4822 050 15602	5k6	1%	0,4W
3697	4822 050 22003	20k	1%	0,6W
3698	4822 050 22003	20k	1%	0,6W
3699	4822 052 10229	22R	5%	0,33W
3701	4822 050 14709	47R	1%	0,4W
3702	4822 050 14709	47R	1%	0,4W
3703	4822 116 52186	22R	5%	0,5W
3704	4822 116 52186	22R	5%	0,5W
3705	4822 050 14709	47R	1%	0,4W
3706	4822 050 14709	47R	1%	0,4W
3707	4822 050 21804	180k	1%	0,6W
3708	4822 050 21804	180k	1%	0,6W
3709	4822 050 13303	33k	1%	0,4W
3710	4822 050 13303	33k	1%	0,4W
3723	4822 100 11392	47k POTMETER		
3724	4822 100 11392	47k POTMETER		
3725	4822 050 21002	1k	1%	0,6W
3726	4822 050 21002	1k	1%	0,6W
3731	4822 116 52234	100k	5%	0,5W
3732	4822 116 52234	100k	5%	0,5W
3733	4822 050 21002	1k	1%	0,6W
3734	4822 050 21002	1k	1%	0,6W
3735	4822 050 22202	2k2	1%	0,6W
3736	4822 050 21002	1k	1%	0,6W
3737	4822 116 80311	4,7R	5%	NFR
3738	4822 050 22702	2k7	1%	0,6W
3739	4822 051 10106	10M	5%	0,25W
3742	4822 052 10229	22R	5%	0,33W
3743	4822 052 10229	22R	5%	0,33W
3744	4822 116 52263	2k7	5%	0,5W
3745	4822 116 52263	2k7	5%	0,5W
3746	4822 050 21003	10k	2%	0,25W
3747	4822 050 21502	1k5	1%	0,6W
3748	4822 050 21002	1k	1%	0,6W
3749	4822 050 22203	22k	1%	0,6W
3750	4822 116 52264	27k	5%	0,5W
3753	4822 050 22202	2k2	1%	0,6W
3754	4822 050 21003	10k	2%	0,25W
3755	4822 050 23002	3k	1%	0,6W
3757	4822 050 21003	10k	2%	0,25W
3760	4822 050 21002	1k	1%	0,6W
3761	4822 050 21003	10k	2%	0,25W
3762	4822 050 21003	10k	2%	0,25W
3763	4822 050 24703	47k	1%	0,6W
3764	4822 050 21003	10k	2%	0,25W
3781	4822 116 80562	10R	5%	NFR
3791	4822 050 21002	1k	1%	0,6W
3792	4822 050 21003	10k	2%	0,25W
3793	4822 050 24703	47k	1%	0,6W
3794	4822 050 24702	4k7	1%	0,6W

CHIP RESISTORS

3404	4822 051 20105	1M	5%	0,1W
3405	4822 051 10101	100R	2%	0,25W
3406	4822 051 10101	100R	2%	0,25W
3407	4822 051 20101	100R	5%	0,1W
3416	4822 051 20273	27k	5%	0,1W
3417	4822 051 20273	27k	5%	0,1W
3418	4822 051 20273	27k	5%	0,1W
3419	4822 051 20273	27k	5%	0,1W
3420	4822 051 20273	27k	5%	0,1W
3421	4822 051 20273	27k	5%	0,1W
3422	4822 051 20273	27k	5%	0,1W
3429	4822 051 10122	1k2	2%	0,25W
3449	4822 051 20682	6k8	5%	0,1W
3450	4822 051 20682	6k8	5%	0,1W
3451	4822 051 20682	6k8	5%	0,1W
3452	4822 051 20682	6k8	5%	0,1W
3453	4822 051 20682	6k8	5%	0,1W
3687	4822 051 10182	1k8	2%	0,25W
3688	4822 051 10182	1k8	2%	0,25W
3711	4822 051 20104	100k	5%	0,1W
3712	4822 051 20104	100k	5%	0,1W
3729	4822 051 10101	100R	2%	0,25W
3730	4822 051 10101	100R	2%	0,25W
3740	4822 051 20479	47R	5%	0,1W
3756	4822 051 20123	12k	2%	0,1W
3758	4822 051 20104	100k	5%	0,1W
3759	4822 051 20103	10k	5%	0,1W
3765	4822 051 20333	33k	5%	0,1W
3766	4822 051 20273	27k	5%	0,1W
3767	4822 051 20273	27k	5%	0,1W
3768	4822 051 20333	33k	5%	0,1W
3769	4822 051 20103	10k	5%	0,1W
3770	4822 051 20103	10k	5%	0,1W
3783	4822 051 20474	470k	5%	0,1W
3784	4822 051 20474	470k	5%	0,1W
3787	4822 051 20101	100R	5%	0,1W
3788	4822 051 20273	27k	5%	0,1W
3795	4822 051 10101	100R	2%	0,25W
3796	4822 051 20272	2k7	5%	0,1W
3798	4822 051 20104	100k	5%	0,1W

CAPACITORS

2401	4822 124 41525	100µF	20%	25V
2403	4822 124 22794	47µF	20%	10V
2412	5322 121 42498	680nF	5%	63V
2414	4822 122 31746	1nF	5%	50V
2651	5322 121 42498	680nF	5%	63V
2652	5322 121 42498	680nF	5%	63V
2653	4822 124 40246	4,7µF	20%	63V
2654	4822 124 40246	4,7µF	20%	63V
2655	4822 124 40242	1µF	20%	63V
2656	4822 124 40242	1µF	20%	63V
2659	4822 121 43676	3,3nF	5%	50V
2660	4822 121 43676	3,3nF	5%	50V
2661	4822 124 40242	1µF	20%	63V
2662	4822 124 40242	1µF	20%	63V

CAPACITORS

2665	4822 124 40248	10µF	20%	63V
2666	4822 124 41525	100µF	20%	25V
2670	4822 124 41525	100µF	20%	25V
2671	4822 124 40246	4,7µF	20%	63V
2672	4822 124 40246	4,7µF	20%	63V
2677	4822 124 40433	47µF	20%	25V
2678	4822 124 40433	47µF	20%	25V
2679	4822 121 51356	180nF	10%	63V
2680	4822 121 51356	180nF	10%	63V
2681	4822 122 31555	120pF	5%	50V
2682	4822 122 31555	120pF	5%	50V
2683	4822 122 10175	2,2nF	10%	50V
2684	4822 122 10175	2,2nF	10%	50V
2685	4822 122 10175	2,2nF	10%	50V
2686	4822 122 10175	2,2nF	10%	50V
2687	4822 124 40246	4,7µF	20%	63V
2688	4822 124 40246	4,7µF	20%	63V
2689	4822 122 10176	4,7nF	10%	50V
2690	4822 122 10176	4,7nF	10%	50V
2691	4822 121 43179	18nF	5%	63V
2692	4822 121 43179	18nF	5%	63V
2693	4822 122 10171	180pF	10%	50V
2694	4822 122 10171	180pF	10%	50V
2695	4822 122 10225	82pF	5%	50V
2696	4822 122 10225	82pF	5%	50V
2697	4822 122 10181	47pF	5%	50V
2698	4822 122 10181	47pF	5%	50V
2712	4822 124 40246	4,7µF	20%	63V
2713	4822 124 40246	4,7µF	20%	63V
2717	5322 122 10237	150pF	10%	
2718	5322 122 10237	150pF	10%	
2721	4822 124 40246	4,7µF	20%	63V
2722	4822 124 40246	4,7µF	20%	63V
2723	4822 122 10183	100pF	5%	50V
2724	4822 122 10183	100pF	5%	50V
2725	4822 122 10174	1,5nF	10%	50V
2726	4822 122 10174	1,5nF	10%	50V
2727	4822 122 10183	100pF	5%	50V
2728	4822 122 10183	100pF	5%	50V
2729	5322 121 42386	100nF	5%	63V
2730	5322 121 42386	100nF	5%	63V
2733	4822 124 40178	100µF	20%	10V
2734	4822 124 40178	100µF	20%	10V
2741	4822 124 22263	220µF	20%	25V
2742	4822 124 41997	470pF	20%	10V
2743	4822 124 40433	47µF	20%	25V
2745	4822 121 42783	2,2nF	1%	250V
2749	4822 124 22263	220µF	20%	25V
2750	4822 124 40248	10µF	20%	63V
2751	4822 124 41997	470pF	20%	10V
2752	4822 124 41643	100µF	20%	16V
2753	4822 124 40435	10µF	20%	50V
2754	4822 124 41678	22µF	20%	25V
2776	4822 124 40435	10µF	20%	50V

CHIP CAPACITORS

2402	4822 122 31797	22nF	10%	63V
2404	4822 122 32542	47nF	10%	63V
2405	4822 122 31797	22nF	10%	63V
2406	4822 122 31765	100pF	5%	50V
2408	4822 122 31765	100pF	5%	50V
2413	4822 122 33496	100nF	10%	63V
2428	4822 122 33496	100nF	10%	63V
2429	4822 122 33496	100nF	10%	63V
2436	4822 122 32927	220nF	10%	63V
2437	4822 122 32927	220nF	10%	63V
2657	4822 122 31772	47pF		
2658	4822 122 31772	47pF		
2663	4822 122 31772	47pF		
2664	4822 122 31772	47pF		
2667	4822 122 31727	470pF	5%	63V
2668	4822 122 32542	47nF	10%	63V
2669	4822 122 31727	470pF	5%	63V
2673	4822 122 31765	100pF	5%	50V
2674	4822 122 31765	100pF	5%	50V
2675	4822 122 31765	100pF	5%	50V
2676	4822 122 31765	100pF	5%	50V
2699	4822 122 31727	470pF	5%	63V
2701	5322 122 31842	330pF	5%	63V
2702	5322 122 31842	330pF	5%	63V
2703	5322 122 31842	330pF	5%	63V
2704	5322 122 31842	330pF	5%	63V
2705	4822 122 31775	680pF	5%	50V
2706	4822 122 31775	680pF	5%	50V
2707	4822 122 31808	150pF	10%	50V
2708	4822 122 31808	150pF	10%	50V
2709	4822 122 31965	220pF	5%	
2710	4822 122 31965	220pF	5%	
2719	4822 122 31765	100pF	5%	50V
2720	4822 122 31765	100pF	5%	50V
2731	4822 122 33608	39nF	10%	63V
2732	4822 122 33608	39nF	10%	63V
2735	4822 122 31727	470pF	5%	63V
2736	4822 122 31727	470pF	5%	63V
2737	4822 122 31727	470pF	5%	63V
2738	4822 122 31727	470pF	5%	63V
2739	4822 122 32542	47nF	10%	63V
2740	4822 122 32542	47nF	10%	63V
2744	4822 122 31784	4,7nF	10%	50V
2747	4822 122 31727	470pF	5%	63V
2748	4822 122 31727	470pF	5%	63V

MISCELLANEOUS

1502	4822 265 20534	PHONE JACK
1511	4822 276 13066	TACT SWITCH
1512	4822 276 13066	TACT SWITCH
1513	4822 276 13066	TACT SWITCH
1514	4822 276 13066	TACT SWITCH
1515	4822 276 13066	TACT SWITCH
1516	4822 276 13066	TACT SWITCH
1517	4822 276 13066	TACT SWITCH
1518	4822 276 13066	TACT SWITCH
1519	4822 276 13066	TACT SWITCH
1520	4822 276 13066	TACT SWITCH
1521	4822 276 13066	TACT SWITCH
1522	4822 276 13066	TACT SWITCH
1523	4822 276 13066	TACT SWITCH
1524	4822 276 13066	TACT SWITCH
1525	4822 276 13066	TACT SWITCH
1526	4822 276 13066	TACT SWITCH
1527	4822 276 13066	TACT SWITCH
1528	4822 276 13066	TACT SWITCH
1529	4822 276 13066	TACT SWITCH
1530	4822 276 13066	TACT SWITCH
1531	4822 276 13066	TACT SWITCH
1550	4822 276 13169	SWITCH

DIODES

6001	4822 130 81678	LED (GL2PR6)
6501	4822 130 34173	BZX79-C5V6
6504	4822 130 30621	1N4148
6505	4822 130 30843	BA315
6506	4822 130 30843	BA315
6551	4822 130 30621	1N4148
6552	4822 130 30621	1N4148
6553	4822 130 30621	1N4148
6554	4822 130 30621	1N4148
6555	4822 130 30621	1N4148
6556	4822 130 30621	1N4148
6557	4822 130 30621	1N4148
6558	4822 130 30621	1N4148
6559	4822 130 30621	1N4148
6560	4822 130 30621	1N4148
6561	4822 130 30621	1N4148
6562	4822 130 30621	1N4148
6563	4822 130 30621	1N4148
6564	4822 130 30621	1N4148
6565	4822 130 30621	1N4148
6566	4822 130 30621	1N4148
6568	4822 130 30621	1N4148
6569	4822 130 30621	1N4148
6570	4822 130 34173	BZX79-C5V6

TRANSISTORS

7505	5322 130 44779	BC338-40
7506	4822 130 41715	BC328-40
7507	5322 130 44779	BC338-40
7508	4822 130 41715	BC328-40
7509	4822 130 61207	BC848 (CHIP)
7510	4822 130 61207	BC848 (CHIP)
7511	4822 130 41715	BC328-40
7512	4822 130 41715	BC328-40
7513	5322 130 41982	BC848 (CHIP)
7561	5322 130 44779	BC338-40
7562	5322 130 44779	BC338-40
7563	5322 130 44779	BC338-40
7564	5322 130 44779	BC338-40
7565	5322 130 41982	BC848 (CHIP)
7566	5322 130 41982	BC848 (CHIP)
7567	5322 130 41982	BC848 (CHIP)
7569	5322 130 41982	BC848 (CHIP)
7570	5322 130 41982	BC848 (CHIP)
7571	5322 130 42136	BC848C
7572	5322 130 42136	BC848C
7573	5322 130 41983	BC858B (CHIP)
7574	5322 130 41983	BC858B (CHIP)

INTEGRATED CIRCUITS

7501	4822 209 83916	TDA1524A/V3
7503	4822 209 73994	NJM3415D
7550	4822 209 30562	YM3428
7551	4822 209 70157	NJM4560DD
7552	4822 209 70157	NJM4560DD

COILS

5550	4822 242 81019	CER. RES. 3,58MHz
5551	4822 157 50963	2,2µH

RESISTORS

3501	4822 050 22201	220R	2%	0,25W
3502	4822 050 22201	220R	2%	0,25W
3512	4822 052 10129	12R	5%	0,33W
3515	4822 116 52186	22R	5%	0,5W
3516	4822 116 52186	22R	5%	0,5W
3519	4822 101 21169	POTMETER 50k		
3520	4822 101 21169	POTMETER 50k		
3521	4822 101 21169	POTMETER 50k		
3524	4822 116 80311	4,7R	5%	NFR
3528	4822 050 21002	1k	1%	0,6W
3530	4822 051 10181	180R	2%	0,25W
3531	4822 051 10181	180R	2%	0,25W
3535	4822 050 21002	1k	1%	0,6W
3540	4822 116 52224	470R	5%	0,5W
3543	4822 102 10441	MOTORPOT 2x50k		
3546	4822 050 26801	680R	1%	0,6W
3549	4822 050 23302	3k3	1%	0,6W
3561	4822 050 25603	56k	1%	0,6W
3562	4822 050 25603	56k	1%	0,6W
3586	4822 116 52244	15k	5%	0,5W
3587	4822 050 24703	47k	1%	0,6W
3589	4822 050 24703	47k	1%	0,6W
3591	4822 050 24703	47k	1%	0,6W
3593	4822 050 24703	47k	1%	0,6W
3609	4822 116 52244	15k	5%	0,5W
3610	4822 116 52244	15k	5%	0,5W
3611	4822 050 21003	10k	2%	0,25W
3634	4822 116 52224	470R	5%	0,5W

RESISTORS

3635	4822 050 28201	820R	1%	0,6W
3636	4822 050 21801	180R	1%	0,6W
3648	4822 050 22201	220R	2%	0,25W
3671	4822 050 23902	3k9	1%	0,6W
3674	4822 050 22201	220R	2%	0,25W
3679	4822 116 52263	2k7	5%	0,5W
3680	4822 116 52263	2k7	5%	0,5W

CHIP RESISTORS

3503	4822 051 20103	10k	5%	0,1W
3504	4822 051 20103	10k	5%	0,1W
3505	4822 051 20331	330R	5%	0,1W
3506	4822 051 20331	330R	5%	0,1W
3507	4822 051 20333	33k	5%	0,1W
3508	4822 051 20333	33k	5%	0,1W
3509	4822 051 20153	15k	5%	0,1W
3510	4822 051 20153	15k	5%	0,1W
3513	4822 051 20333	33k	5%	0,1W
3514	4822 051 20333	33k	5%	0,1W
3517	4822 051 20103	10k	5%	0,1W
3518	4822 051 20103	10k	5%	0,1W
3525	4822 051 20104	100k	5%	0,1W
3526	4822 051 20104	100k	5%	0,1W
3527	4822 051 20472	4k7	5%	0,1W
3529	4822 051 10102	1k	2%	0,25W
3533	4822 051 10102	1k	2%	0,25W
3534	4822 051 20472	4k7	5%	0,1W
3541	4822 051 20103	10k	5%	0,1W
3542	4822 051 20273	27k	5%	0,1W
3544	4822 051 20103	10k	5%	0,1W
3545	4822 051 20393	39k	5%	0,1W
3547	4822 051 20681	680R	5%	0,1W
3548	4822 051 20681	680R	5%	0,1W
3550	4822 051 20822	8k2	5%	0,1W
3551	4822 051 20393	39k	5%	0,1W
3552	4822 051 20393	39k	5%	0,1W
3553	4822 051 20682	6k8	5%	0,1W
3554	4822 051 20682	6k8	5%	0,1W
3555	4822 051 20473	47k	5%	0,1W
3556	4822 051 20473	47k	5%	0,1W
3557	4822 051 20561	560R	5%	0,1W
3558	4822 051 20561	560R	5%	0,1W
3559	4822 051 20224	220k	5%	0,1W
3560	4822 051 20224	220k	5%	0,1W
3563	4822 051 20101	100R	5%	0,1W
3564	4822 051 20101	100R	5%	0,1W
3565	4822 051 20561	560R	5%	0,1W
3566	4822 051 20561	560R	5%	0,1W
3567	4822 051 20334	330k	5%	0,1W
3568	4822 051 20334	330k	5%	0,1W
3569	4822 051 20273	27k	5%	0,1W
3570	4822 051 20273	27k	5%	0,1W
3571	4822 051 20561	560R	5%	0,1W
3572	4822 051 20561	560R	5%	0,1W
3573	4822 051 20393	39k	5%	0,1W
3574	4822 051 20393	39k	5%	0,1W
3575	4822 051 20103	10k	5%	0,1W
3576	4822 051 20103	10k	5%	0,1W
3577	4822 051 20224	220k	5%	0,1W
3578	4822 051 20224	220k	5%	0,1W
3579	4822 051 20473	47k	5%	0,1W
3580	4822 051 20473	47k	5%	0,1W
3581	4822 051 10102	1k	2%	0,25W
3582	4822 051 10102	1k	2%	0,25W
3583	4822 051 20183	18k	5%	0,1W
3584	4822 051 20183	18k	5%	0,1W
3585	4822 051 20153	15k	5%	0,1W
3588	4822 051 20473	47k	5%	0,1W
3590	4822 051 20473	47k	5%	0,1W
3592	4822 051 20473	47k	5%	0,1W
3594	4822 051 20473	47k	5%	0,1W
3595	4822 051 20682	6k8	5%	0,1W
3596	4822 051 20682	6k8	5%	0,1W
3597	4822 051 20223	22k	5%	0,1W
3598	4822 051 20223	22k	5%	0,1W
3599	4822 051 20101	100R	5%	0,1W
3600	4822 051 20101	100R	5%	0,1W
3602	4822 051 20104	100k	5%	0,1W
3603	4822 051 20822	8k2	5%	0,1W
3604	4822 051 20822	8k2	5%	0,1W
3605	4822 051 20153	15k	5%	0,1W
3606	4822 051 20153	15k	5%	0,1W
3607	4822 051 20563	56k	5%	0,1W
3608	4822 051 20563	56k	5%	0,1W
3612	4822 051 20103	10k	5%	0,1W
3613	4822 051 20272	2k7	5%	0,1W
3614	4822 051 20272	2k7	5%	0,1W
3615	4822 051 20103	10k	5%	0,1W
3616	4822 051 20472	4k7	5%	0,1W
3617	4822 051 20182	1k8	5%	0,1W
3618	4822 051 20182	1k8	5%	0,1W
3619	4822 051 20153	15k	5%	0,1W
3620	4822 051 20153	15k	5%	0,1W
3623	4822 051 20222	2k2	5%	0,1W
3624	4822 051 20222	2k2	5%	0,1W
3626	4822 051 10102	1k	2%	0,25W
3627	4822 051 20682	6k8	5%	0,1W
3629	4822 051 20821	820R	5%	0,1W
3630	4822 051 20562	5k6	5%	0,1W
3631	4822 051 20562	5k6	5%	0,1W
3632	4822 051 20104	100k	5%	0,1W
3633	4822 051 20104	100k	5%	0,1W
3637	4822 051 20103	10k	5%	0,1W
3638	4822 051 20823	82k	5%	0,1W
3639	4822 051 20824	820k	5%	0,1W
3640	4822 051 20333	33k	5%	0,1W
3642	4822 051 20333	33k	5%	0,1W
3643	4822 051 20682	6k8	5%	0,1W
3644	4822 051 20274	270k	5%	0,1W
3645	4822 051 20223	22k	5%	0,1W
3646	4822 051 20563	56k	5%	0,1W
3647	4822 051 20152	1k5	5%	0,1W
3649	4822 051 10102	1k	2%	0,25W
3650	4822 051 10102	1k	2%	0,25W
3651	4822 051 20103	10k	5%	0,1W
3652	4822 051 20103	10k	5%	0,1W
3653	4822 051 20185	1,8M	5%	0,1W
3654	4822 051 20185	1,8M	5%	0,1W

CHIP RESISTORS

3655	4822 051 20824	820k	5%	0,1W
3656	4822 051 20824	820k	5%	0,1W
3657	4822 051 20563	56k	5%	0,1W
3658	4822 051 20563	56k	5%	0,1W
3659	4822 051 20823	82k	5%	0,1W
3660	4822 051 20823	82k	5%	0,1W
3661	4822 051 20272	2k7	5%	0,1W
3662	4822 051 20272	2k7	5%	0,1W
3665	4822 051 20223	22k	5%	0,1W
3666	4822 051 20223	22k	5%	0,1W
3667	4822 051 20223	22k	5%	0,1W
3668	4822 051 20223	22k	5%	0,1W
3669	4822 051 20332	3k3	5%	0,1W
3670	4822 051 20332	3k3	5%	0,1W
3672	4822 051 20392	3k9	5%	0,1W
3673	4822 051 20105	1M	5%	0,1W
3675	4822 051 20332	3k3	5%	0,1W
3676	4822 051 20332	3k3	5%	0,1W
3677	4822 051 20103	10k	5%	0,1W
3678	4822 051 20103	10k	5%	0,1W
3681	4822 051 20683	68k	5%	0,1W
3682	4822 051 20683	68k	5%	0,1W
3683	4822 051 20682	6k8	5%	0,1W
3684	4822 051 20682	6k8	5%	0,1W
3685	4822 051 20222	2k2	5%	0,1W
3686	4822 051 20222	2k2	5%	0,1W
3687	4822 051 20222	2k2	5%	0,1W
3950	4822 051 20008	CHIP JUMPER		
3951	4822 051 20008	CHIP JUMPER		

CAPACITORS

1505	4822 124 40244	2,2µF	20%	63V
2501	4822 124 40239	0,47µF	20%	63V
2502	4822 124 40239	0,47µF	20%	63V
2505	4822 124 40244	2,2µF	20%	63V
2506	4822 124 40244	2,2µF	20%	63V
2509	4822 121 51243	56nF	5%	50V
2510	4822 121 51243	56nF	5%	50V
2511	4822 124 40246	4,7µF	20%	63V
2512	4822 124 40246	4,7µF	20%	63V
2513	4822 124 40239	0,47µF	20%	63V
2514	4822 124 40239	0,47µF	20%	63V
2519	4822 124 40178	100µF	20%	10V
2520	4822 124 40178	100µF	20%	10V
2521	4822 124 40178	100µF	20%	10V
2522	4822 124 40239	0,47µF	20%	63V
2523	4822 124 41643	100µF	20%	16V
2525	4822 124 40239	0,47µF	20%	63V
2526	4822 124 40239	0,47µF	20%	63V
2527	4822 124 40239	0,47µF	20%	63V
2528	4822 124 40433	47µF	20%	25V
2529	4822 124 40196	220µF	20%	16V
2531	4822 124 41643	100µF	20%	16V
2534	4822 124 41509	33µF	20%	35V
2535	4822 122 31746	1nF	5%	50V
2536	4822 122 31746	1nF	5%	50V
2551	4822 124 40242	1µF	20%	63V
2552	4822 124 40242	1µF	20%	63V
2557	4822 124 40239	0,47µF	20%	63V
2558	4822 124 40239	0,47µF	20%	63V
2567	4822 124 40435	10µF	20%	50V
2568	4822 124 40435	10µF	20%	50V
2569	4822 124 40239	0,47µF	20%	63V
2570	4822 124 40239	0,47µF	20%	63V
2571	4822 124 40242	1µF	20%	63V
2572	4822 124 40242	1µF	20%	63V
2573	4822 124 40242	1µF	20%	63V
2574	4822 124 40242	1µF	20%	63V
2591	4822 124 40242	1µF	20%	63V
2592	4822 124 40242	1µF	20%	63V
2593	4822 124 40435	10µF	20%	50V
2594	4822 124 40435	10µF	20%	50V
2596	4822 124 40731	330µF	20%	6,3V
2597	4822 124 41643	100µF	20%	16V
2599	4822 124 40433	47µF	20%	25V
2600	4822 121 41856	22nF	5%	250V
2601	4822 124 40435	10µF	20%	50V
2603	4822 124 40849	330µF	20%	16V
2605	4822 124 40433	47µF	20%	25V
2607	4822 124 40433	47µF	20%	25V
2612	4822 121 51379	82nF	10%	63V
2613	4822 124 40178	100µF	20%	10V
2614	4822 126 10509	100nF	20%	16V
2623	4822 124 40242	1µF	20%	63V
2624	4822 124 40242	1µF	20%	63V
2629	4822 122 31746	1nF	5%	50V
2630	4822 122 31746	1nF	5%	50V
2635	4822 124 40239	0,47µF	20%	63V
2636	4822 124 40239	0,47µF	20%	63V
2637	4822 124 41596	22µF	20%	50V
2638	4822 124 41596	22µF	20%	50V
2639	4822 124 40242	1µF	20%	63V
2640	4822 124 40242	1µF	20%	63V
2643	4822 124 41596	22µF	20%	50V
2645	4822 124 41554	220µF	20%	10V
2646	4822 122 33064	330nF	20%	25V
2647	4822 124 40433	47µF	20%	25V
2648	4822 124 40433	47µF	20%	25V
2649	4822 124 40433	47µF	20%	25V
2650	4822 124 40433	47µF	20%	25V
2651	4822 124 40244	2,2µF	20%	63V
2652	4822 124 40244	2,2µF	20%	63V
2653	4822 122 10158	1nF	10%	50V
2654	4822 122 31746	1nF	5%	50V

CHIP CAPACITORS

2503	4822 122 31765	100pF	5%	50V
2504	4822 122 31765	100pF	5%	50V
2507	4822 122 31782	15nF	10%	50V
2508	4822 122 31782	15nF	10%	50V
2515	4822 122 31765	100pF	5%	50V
2516	4822 122 31765	100pF	5%	50V
2517	4822 122 31772	47pF		
2518	4822 122 31772	47pF		
2524	4822 122 32927	220nF	10%	63V
2532	4822 122 32542	47nF	10%	63V
2553	4822 122 31765	100pF	5%	50V

CHIP CAPACITORS

2554	4822 122 31765	100pF	5%	50V
2555	4822 122 31727	470pF	5%	63V
2556	4822 122 31727	470pF	5%	63V
2559	4822 122 31765	100pF	5%	50V
2560	4822 122 31765	100pF	5%	50V
2561	4822 122 32765	820pF	10%	63V
2562	4822 122 32765	820pF	10%	63V
2563	4822 122 32442	10nF	10%	50V
2564	4822 122 32442	10nF	10%	50V
2565	4822 122 33498	2,7nF	10%	63V
2566	4822 122 33498	2,7nF	10%	63V
2575	4822 122 31772	47pF		
2576	4822 122 31772	47pF		
2577	4822 122 31772	47pF		
2578	4822 122 31772	47pF		
2579	4822 122 31772	47pF		
2580	4822 122 31772	47pF		
2581	4822 122 31772	47pF		
2582	4822 122 31772	47pF		
2583	4822 122 31772	47pF		
2584	4822 122 31772	47pF		
2585	4822 122 31765	100pF	5%	50V
2586	4822 122 31765	100pF	5%	50V
2587	4822 122 31772	47pF		
2588	4822 122 31772	47pF		
2589	4822 122 31727	470pF	5%	63V
2590	4822 122 31727	470pF	5%	63V
2598	4822 122 32542	47nF	10%	63V
2602	4822 122 32542	47nF	10%	63V
2604	4822 122 32542	47nF	10%	63V
2606	4822 122 33498	2,7nF	10%	63V
2608	4822 122 31808	150pF	10%	50V
2609	4822 122 33498	2,7nF	10%	63V
2610	4822 122 31807	1,2nF	5%	50V
2611	4822 122 31839	82pF	5%	50V
2615	4822 122 32442	10nF	10%	50V
2616	4822 122 32542	47nF	10%	63V
2617	4822 122 32999	2,2nF	5%	
2619	4822 122 31765	100pF	5%	50V
2620	4822 122 31765	100pF	5%	50V
2621	4822 122 32999	2,2nF	5%	
2622	4822 122 32999	2,2nF	5%	
2625	4822 122 31727	470pF	5%	63V
2626	4822 122 31727	470pF	5%	63V
2627	4822 122 31774	56pF	5%	50V
2628	4822 122 31774	56pF	5%	50V
2631	4822 122 31784	4,7nF	10%	50V
2632	4822 122 31784	4,7nF	10%	50V
2633	4822 122 31808	150pF	10%	50V
2634	4822 122 31808	150pF	10%	50V
2644	4822 122 32542	47nF	10%	63V

MISCELLANEOUS

1101	4822 267 31128	COAX,ANTENNA 75 OHM

DIODES

6101	4822 130 81643	BB804
6102	4822 130 81643	BB804
6104	4822 130 81673	1SV149(B)
6105	4822 130 81673	1SV149(B)
6107	4822 130 34174	BZX79-C4V7
6110	4822 130 81643	BB804
6111	4822 130 81643	BB804

TRANSISTORS

7101	4822 130 60163	2SC1047
7102	4822 130 60093	2SA838B
7104	4822 130 44154	BF199
7105	4822 130 40937	BC548B
7107	5322 130 44779	BC338-40
7108	5322 130 44779	BC338-40
7109	5322 130 41982	BC848 (CHIP)
7111	5322 130 41982	BC848 (CHIP)
7112	4822 130 60163	2SC1047
7113	5322 130 41982	BC848 (CHIP)
7114	5322 130 41982	BC848 (CHIP)
7115	5322 130 41982	BC848 (CHIP)
7116	5322 130 41982	BC848 (CHIP)
7117	4822 130 41024	BF245B
7118	5322 130 41982	BC848 (CHIP)
7119	5322 130 41982	BC848 (CHIP)

INTEGRATED CIRCUITS

7103	4822 209 72744	CXA1240P
7106	4822 209 71321	AN7411
7110	4822 209 71331	LM7000

COILS

5101	4822 156 30947	RF COIL 1,5 TURNS
5102	4822 156 30947	RF COIL 1,5 TURNS
5103	4822 156 30947	RF COIL 1,5 TURNS
5104	4822 157 63288	FM OSC. COIL
5105	4822 157 63031	AM OSCILLATOR COIL
5106	4822 157 53192	0,22µH
5107	4822 242 72096	CER.FILT.KIT 10,7MHz
5108	4822 157 63029	AM IF COIL
5109	4822 242 71878	CERAM.RES. 450kHz
5110	4822 157 63033	MW AERIAL COIL
5111	4822 157 63163	FM IF COIL
5112	4822 242 72976	QUARTZ 2,7MHz
5113	4822 157 60147	COIL 2,2µH
5114	4822 158 60509	BIRDY FILTER
5115	4822 157 60147	COIL 2,2µH
5116	4822 157 63032	LW AERIAL COIL
5118	4822 152 20699	560µH

RESISTORS

3105	4822 050 23901	390R	1%	0,6W
3106	4822 116 52224	470R	5%	0,5W
3107	4822 050 24702	4k7	1%	0,6W
3111	4822 050 24703	47k	1%	0,6W
3114	4822 100 20166	10k TRIMPOT.		
3116	4822 050 22201	220R	2%	0,25W
3120	4822 050 23903	39k	1%	0,6W
3125	4822 050 24702	4k7	1%	0,6W
3128	4822 050 24702	4k7	1%	0,6W
3131	4822 050 23301	330R	2%	0,25W
3132	4822 050 26801	680R	1%	0,6W
3134	4822 050 24702	4k7	1%	0,6W
3135	4822 050 22201	220R	2%	0,25W
3139	4822 050 24702	4k7	1%	0,6W
3141	4822 050 21003	10k	2%	0,25W
3142	4822 050 22201	220R	2%	0,25W
3143	4822 050 22203	22k	1%	0,6W
3145	4822 100 20166	10k TRIMPOT.		
3147	4822 050 22201	220R	2%	0,25W
3148	4822 050 21003	10k	2%	0,25W
3149	4822 050 21002	1k	1%	0,6W
3150	4822 050 21002	1k	1%	0,6W
3151	4822 050 21002	1k	1%	0,6W
3153	4822 050 21002	1k	1%	0,6W
3171	4822 050 26801	680R	1%	0,6W
3173	4822 050 21002	1k	1%	0,6W

CHIP RESISTORS

3101	4822 051 20473	47k	5%	0,1W
3102	4822 051 20333	33k	5%	0,1W
3103	4822 051 10472	4k7	2%	0,25W
3104	4822 051 10102	1k	2%	0,25W
3108	4822 051 10122	1k2	2%	0,25W
3109	4822 051 10101	100R	2%	0,25W
3112	4822 051 20008	CHIP JUMPER		
3113	4822 051 20689	68R	5%	0,1W
3115	4822 051 10479	47R		
3117	4822 051 10103	10k	2%	0,25W
3118	4822 051 20271	270R	5%	0,1W
3121	4822 051 20104	100k	5%	0,1W
3122	4822 051 10272	2k7	2%	0,25W
3124	4822 051 10008	JUMPER		
3126	4822 051 10472	4k7	2%	0,25W
3127	4822 051 20472	4k7	5%	0,1W
3129	4822 051 20104	100k	5%	0,1W
3130	4822 051 20104	100k	5%	0,1W
3133	4822 051 20223	22k	5%	0,1W
3136	4822 051 10153	15k	2%	0,25W
3137	4822 051 20562	5k6	5%	0,1W
3138	4822 051 20472	4k7	5%	0,1W
3140	4822 051 10102	1k	2%	0,25W
3144	4822 051 20183	18k	5%	0,1W
3146	4822 051 10821	820R	2%	0,25W
3156	4822 051 10103	10k	2%	0,25W
3157	4822 051 10008	JUMPER		
3158	4822 051 20104	100k	5%	0,1W
3160	4822 051 10008	JUMPER		
3161	4822 051 20473	47k	5%	0,1W

CHIP RESISTORS

3162	4822 051 20479	47R	5%	0,1W
3163	4822 051 20562	5k6	5%	0,1W
3164	4822 051 20008	CHIP JUMPER		
3170	4822 051 10008	JUMPER		
3172	4822 051 20223	22k	5%	0,1W
3174	4822 051 10102	1k	2%	0,25W
3175	4822 051 10331	330R	2%	0,25W
3176	4822 051 20271	270R	5%	0,1W
3177	4822 051 10151	150R	2%	0,25W
3178	4822 051 20223	22k	5%	0,1W
3179	4822 051 10472	4k7	2%	0,25W

CAPACITORS

2100	4822 122 31555	120pF	5%	50V
2103	4822 125 50355	4,2-20pF VARIABLE		
2109	4822 125 50355	4,2-20pF VARIABLE		
2111	4822 125 50355	4,2-20pF VARIABLE		
2115	5322 122 32481	15pF	5%	50V
2119	4822 124 41554	220µF	20%	10V
2123	4822 122 31555	120pF	5%	50V
2130	4822 124 40178	100µF	20%	10V
2131	4822 124 40244	2,2µF	20%	63V
2134	5322 121 50999	470pF	1%	400V
2135	4822 121 43253	360pF	1%	400V
2136	4822 125 60101	10pF VARIABLE		
2137	4822 122 10436	6,8pF	10%	50V
2139	4822 122 10166	22nF	30%	16V
2141	4822 122 31385	22pF	5%	50V
2144	4822 124 41554	220µF	20%	10V
2146	4822 122 32096	4,7pF	10%	50V
2150	4822 121 42408	220nF	5%	63V
2151	4822 125 60101	10pF VARIABLE		
2152	4822 121 43861	56pF	1%	63V
2155	4822 124 41631	1,5µF	20%	50V
2158	4822 124 40196	220µF	20%	16V
2161	4822 124 40246	4,7µF	20%	63V
2165	4822 124 40242	1µF	20%	63V
2167	4822 124 41643	100µF	20%	16V
2168	5322 121 50999	470pF	1%	400V
2170	4822 124 40239	0,47µF	20%	63V
2172	4822 124 42129	0,22µF	20%	63V
2173	4822 124 40246	4,7µF	20%	63V
2176	4822 124 40242	1µF	20%	63V
2177	4822 124 40242	1µF	20%	63V
2180	5322 122 32965	18pF	5%	50V
2181	5322 122 32481	15pF	5%	50V
2182	4822 124 40242	1µF	20%	63V
2198	5322 122 32481	15pF	5%	50V
2205	4822 125 60102	30pF VARIABLE		
2215	5322 122 32967	5,6pF	5%	50V
2216	5322 122 32967	5,6pF	5%	50V

CHIP CAPACITORS

2104	5322 122 32658	22pF	5%	50V
2105	5322 122 32531	100pF	5%	50V
2106	4822 122 31727	470pF	5%	63V
2107	4822 122 31727	470pF	5%	63V
2108	4822 122 31727	470pF	5%	63V
2112	4822 122 31727	470pF	5%	63V
2113	4822 122 31727	470pF	5%	63V
2114	4822 122 32765	820pF	10%	63V
2116	5322 122 32658	22pF	5%	50V
2117	4822 122 32139	12pF	5%	63V
2118	4822 122 31971	10pF	10%	50V
2120	5322 122 32654	22nF	10%	63V
2124	4822 122 31727	470pF	5%	63V
2125	5322 122 33538	150pF	5%	63V
2126	5322 122 33538	150pF	5%	63V
2127	5322 122 32654	22nF	10%	63V
2128	5322 122 32661	56pF	5%	50V
2129	5322 122 32654	22nF	10%	63V
2132	5322 122 34123	1nF	10%	50V
2133	4822 122 31825	27pF	10%	50V
2138	4822 122 32482	22pF	5%	63V
2140	4822 122 32927	220nF	10%	63V
2142	5322 122 32452	47pF	5%	50V
2143	5322 122 32452	47pF	5%	50V
2147	5322 122 32268	470pF	10%	50V
2148	4822 122 31727	470pF	5%	63V
2149	5322 122 33537	1,2pF	5%	63V
2153	5322 122 32654	22nF	10%	63V
2156	4822 122 33339	4,7nF	10%	50V
2157	4822 122 33339	4,7nF	10%	50V
2159	5322 122 32654	22nF	10%	63V
2160	4822 122 31727	470pF	5%	63V
2162	4822 122 32142	270pF	5%	63V
2164	4822 122 33173	560pF	10%	63V
2166	5322 122 32654	22nF	10%	63V
2169	5322 122 32654	22nF	10%	63V
2171	4822 122 31727	470pF	5%	63V
2174	4822 122 33543	15nF	10%	
2175	4822 122 33543	15nF	10%	
2178	4822 122 33173	560pF	10%	63V
2179	5322 122 32654	22nF	10%	63V
2183	4822 122 32927	220nF	10%	63V
2184	4822 122 31727	470pF	5%	63V
2185	4822 122 32765	820pF	10%	63V
2186	4822 122 31727	470pF	5%	63V
2187	4822 122 31727	470pF	5%	63V
2188	4822 122 31727	470pF	5%	63V
2189	4822 122 31965	220pF	5%	
2191	5322 122 32287	4,7pF	5%	50V
2192	4822 122 32927	220nF	10%	63V
2193	4822 122 32765	820pF	10%	63V
2195	4822 122 32927	220nF	10%	63V
2199	5322 122 33538	150pF	5%	63V
2200	5322 122 31647	1nF	10%	63V
2201	4822 122 32927	220nF	10%	63V
2210	5322 122 32268	470pF	10%	50V
2211	5322 122 32448	10pF	5%	50V

MISCELLANEOUS

1010	4822 146 31021	MAINS TRANSFORMER FOR /20 /22
1010	4822 146 31024	MAINS TRANSFORMER FOR /21 /25 /30
1250	4822 265 20291	MAINS SOCKET
1253	4822 071 52502	FUSE T 2,5A
1254	4822 071 54002	FUSE T4A
1255	4822 071 54002	FUSE T4A
1257	4822 272 10269	VOLTAGE SELECTOR (not in all versions)
1352	4822 267 31107	LS-TERMINAL

DIODES

1301	4822 130 30621	1N4148
6251	4822 130 82079	D3SBA20
6252	4822 130 82079	D3SBA20
6253	4822 130 82079	D3SBA20
6254	4822 130 34281	BZX79-C15
6257	4822 130 34233	BZX79-B5V1
6261	4822 130 30621	1N4148
6262	5322 130 30684	1N4002
6263	5322 130 30684	1N4002
6264	5322 130 30684	1N4002
6265	5322 130 30684	1N4002
6266	4822 130 80928	BZX79-C30 (UAW)
6287	4822 130 30621	1N4148
6289	4822 130 30621	1N4148
6290	4822 130 30621	1N4148
6301	4822 130 30621	1N4148
6302	4822 130 30621	1N4148
6303	4822 130 34197	BZX79-C12 (UAW)
6304	4822 130 34197	BZX79-C12 (UAW)
6305	4822 130 34197	BZX79-C12 (UAW)
6306	4822 130 34197	BZX79-C12 (UAW)
6307	4822 130 30621	1N4148
6308	4822 130 30621	1N4148
6309	4822 130 30621	1N4148
6310	4822 130 30621	1N4148
6311	4822 130 30621	1N4148
6312	4822 130 30621	1N4148
6360	4822 130 30621	1N4148
6361	4822 130 34197	BZX79-C12 (UAW)
6362	4822 130 34197	BZX79-C12 (UAW)
6363	4822 130 30621	1N4148
6364	4822 130 30621	1N4148
6365	4822 130 30621	1N4148
6380	4822 130 30621	1N4148
6381	4822 130 30621	1N4148
6383	4822 130 30621	1N4148

TRANSISTORS

7251	5322 130 61573	BD676
7252	4822 130 40982	BD433
7278	4822 130 40959	BC547B
7279	4822 130 40959	BC547B
7280	4822 130 40937	BC548B
7282	4822 130 44568	BC557B
7283	4822 130 44568	BC557B
7284	4822 130 40937	BC548B
7287	4822 130 40959	BC547B
7290	4822 130 40959	BC547B

TRANSISTORS

7301	5322 130 44926	BDT62B
7302	5322 130 44926	BDT62B
7303	5322 130 42363	BDT63B
7304	5322 130 42363	BDT63B
7305	4822 130 44197	BC558B
7306	4822 130 44197	BC558B
7307	4822 130 44197	BC558B
7308	4822 130 44197	BC558B
7309	4822 130 40959	BC547B
7310	4822 130 40959	BC547B
7311	4822 130 40959	BC547B
7312	4822 130 40959	BC547B
7313	5322 130 44864	BC517
7314	5322 130 44864	BC517
7315	4822 130 44568	BC557B
7316	4822 130 44568	BC557B
7317	4822 130 40937	BC548B
7318	4822 130 40937	BC548B
7319	4822 130 41344	BC337-40
7320	4822 130 41344	BC337-40
7360	5322 130 44926	BDT62B
7361	5322 130 42363	BDT63B
7362	4822 130 44197	BC558B
7363	4822 130 40937	BC548B
7364	4822 130 44197	BC558B
7365	4822 130 40959	BC547B
7366	4822 130 44568	BC557B
7367	4822 130 40959	BC547B
7368	5322 130 44864	BC517
7369	4822 130 41344	BC337-40
7381	4822 130 44196	BC548C

INTEGRATED CIRCUITS

7321	5322 130 42216	TL081CP
7322	5322 130 42216	TL081CP
7370	5322 130 42216	TL081CP
7382	4822 209 72491	KA2224

COILS

5250	4822 152 20677	10µH
5251	4822 152 20677	10µH
5252	4822 152 20677	10µH

RESISTORS

3250	4822 052 10108	1R	5%	0,33W
3251	4822 050 28201	820R	1%	0,6W
3252	4822 050 24702	4k7	1%	0,6W
3253	4822 116 80562	10R	5%	NFR
3254	4822 116 80311	4,7R	5%	NFR
3255	4822 116 80311	4,7R	5%	NFR
3256	4822 116 80311	4,7R	5%	NFR
3257	4822 116 80311	4,7R	5%	NFR
3261	4822 116 82366	2R2	5%	
3272	4822 050 21002	1k	1%	0,6W
3277	4822 050 21002	1k	1%	0,6W
3294	4822 050 21003	10k	2%	0,25W
3297	4822 053 34189	18R	5%	1W

RESISTORS

3301	4822 113 80577	,18R	5%	
3302	4822 113 80577	,18R	5%	
3307	4822 050 24708	4R7	1%	0,6W
3308	4822 050 24708	4R7	1%	0,6W
3311	4822 113 80577	0,18R	5%	
3312	4822 113 80577	0,18R	5%	
3317	4822 116 80562	10R	5%	NFR
3318	4822 116 80562	10R	5%	NFR
3321	4822 116 80562	10R	5%	NFR
3322	4822 116 80562	10R	5%	NFR
3329	4822 100 11682	POTMETER 47k LIN		
3330	4822 100 11682	POTMETER 47k LIN		
3345	4822 116 52234	100k	5%	0,5W
3346	4822 116 52234	100k	5%	0,5W
3347	4822 116 52264	27k	5%	0,5W
3348	4822 116 52264	27k	5%	0,5W
3349	4822 116 52234	100k	5%	0,5W
3356	4822 113 80577	,18R	5%	
3360	4822 116 80562	10R	5%	NFR
3364	4822 050 24708	4R7	1%	0,6W
3365	4822 116 80562	10R	5%	NFR
3369	4822 113 80577	,18R	5%	
3374	4822 100 11682	POTMETER 47k LIN		
3380	4822 116 52234	100k	5%	0,5W
3381	4822 116 52264	27k	5%	0,5W
3385	4822 050 23302	3k3	1%	0,6W
3385	4822 116 52263	2k7	5%	0,5W
3387	4822 050 21003	10k	2%	0,25W
3888	4822 050 22201	220R	2%	0,25W

CHIP RESISTORS

3200	4822 051 20008	CHIP JUMPER		
3201	4822 051 20008	CHIP JUMPER		
3248	4822 051 20473	47k	5%	0,1W
3249	4822 051 20104	100k	5%	0,1W
3258	4822 051 20562	5k6	5%	0,1W
3259	4822 051 20153	15k	5%	0,1W
3260	4822 051 20153	15k	5%	0,1W
3262	4822 051 10102	1k	2%	0,25W
3262	4822 051 20008	CHIP JUMPER		
3263	4822 051 10102	1k	2%	0,25W
3263	4822 051 20008	CHIP JUMPER		
3273	4822 051 20474	470k	5%	0,1W
3274	4822 051 20273	27k	5%	0,1W
3275	4822 051 20472	4k7	5%	0,1W
3278	4822 051 20473	47k	5%	0,1W
3279	4822 051 20153	15k	5%	0,1W
3280	4822 051 20472	4k7	5%	0,1W
3281	4822 051 20182	1k8	5%	0,1W
3282	4822 051 20821	820R	5%	0,1W
3283	4822 051 20473	47k	5%	0,1W
3284	4822 051 20103	10k	5%	0,1W
3285	4822 051 20472	4k7	5%	0,1W
3286	4822 051 20474	470k	5%	0,1W
3287	4822 051 20333	33k	5%	0,1W
3288	4822 051 20334	330k	5%	0,1W
3289	4822 051 20184	180k	5%	0,1W
3290	4822 051 20183	18k	5%	0,1W
3291	4822 051 20105	1M	5%	0,1W
3292	4822 051 20223	22k	5%	0,1W
3293	4822 051 20223	22k	5%	0,1W
3295	4822 051 10102	1k	2%	0,25W
3296	4822 051 10102	1k	2%	0,25W
3298	4822 051 20332	3k3	5%	0,1W
3299	4822 051 20472	4k7	5%	0,1W
3300	4822 051 20472	4k7	5%	0,1W
3303	4822 051 20223	22k	5%	0,1W
3304	4822 051 20223	22k	5%	0,1W
3305	4822 051 20562	5k6	5%	0,1W
3306	4822 051 20562	5k6	5%	0,1W
3309	4822 051 20222	2k2	5%	0,1W
3310	4822 051 20222	2k2	5%	0,1W
3313	4822 051 20223	22k	5%	0,1W
3314	4822 051 20223	22k	5%	0,1W
3315	4822 051 20562	5k6	5%	0,1W
3316	4822 051 20562	5k6	5%	0,1W
3319	4822 051 20221	220R	5%	0,1W
3320	4822 051 20221	220R	5%	0,1W
3323	4822 051 20221	220R	5%	0,1W
3324	4822 051 20221	220R	5%	0,1W
3325	4822 051 20472	4k7	5%	0,1W
3326	4822 051 20472	4k7	5%	0,1W
3327	4822 051 20335	3M3	5%	0,1W
3328	4822 051 20335	3M3	5%	0,1W
3331	4822 051 20184	180k	5%	0,1W
3332	4822 051 20184	180k	5%	0,1W
3333	4822 051 20103	10k	5%	0,1W
3334	4822 051 20103	10k	5%	0,1W
3335	4822 051 20332	3k3	5%	0,1W
3336	4822 051 20332	3k3	5%	0,1W
3337	4822 051 20224	220k	5%	0,1W
3338	4822 051 20224	220k	5%	0,1W
3339	4822 051 10101	100R	2%	0,25W
3340	4822 051 10101	100R	2%	0,25W
3341	4822 051 20273	27k	5%	0,1W
3342	4822 051 20273	27k	5%	0,1W
3343	4822 051 20331	330R	5%	0,1W
3344	4822 051 20331	330R	5%	0,1W
3350	4822 051 20104	100k	5%	0,1W
3351	4822 051 20155	1M5	5%	0,1W
3352	4822 051 20155	1M5	5%	0,1W
3353	4822 051 20222	2k2	5%	0,1W
3354	4822 051 20222	2k2	5%	0,1W
3355	4822 051 10102	1k	2%	0,25W
3357	4822 051 20223	22k	5%	0,1W
3358	4822 051 20562	5k6	5%	0,1W
3359	4822 051 20221	220R	5%	0,1W
3361	4822 051 20472	4k7	5%	0,1W
3362	4822 051 20222	2k2	5%	0,1W
3363	4822 051 20222	2k2	5%	0,1W
3366	4822 051 20221	220R	5%	0,1W
3367	4822 051 20562	5k6	5%	0,1W
3368	4822 051 20223	22k	5%	0,1W
3370	4822 051 20472	4k7	5%	0,1W
3371	4822 051 20184	180k	5%	0,1W
3372	4822 051 20103	10k	5%	0,1W
3373	4822 051 20332	3k3	5%	0,1W
3375	4822 051 20335	3M3	5%	0,1W
3376	4822 051 20224	220k	5%	0,1W

CHIP RESISTORS

3377	4822 051 10101	100R	2%	0,25W
3378	4822 051 20273	27k	5%	0,1W
3379	4822 051 20331	330R	5%	0,1W
3382	4822 051 20103	10k	5%	0,1W
3382	4822 051 20183	18k	5%	0,1W
3383	4822 051 20155	1M5	5%	0,1W
3384	4822 051 20474	470k	5%	0,1W
3386	4822 051 20681	680R	5%	0,1W
3389	4822 051 20222	2k2	5%	0,1W
3390	4822 051 20222	2k2	5%	0,1W
3391	4822 051 20569	56R	5%	0,1 W
3392	4822 051 10102	1k	2%	0,25W
3393	4822 051 20103	10k	5%	0,1W
3394	4822 051 20122	1,2k	5%	0,1W
3394	4822 051 20182	1k8	5%	0,1W
3395	4822 051 20392	3k9	5%	0,1W
3395	4822 051 20104	100k	5%	0,1W
3396	4822 051 20103	10k	5%	0,1W
3397	4822 051 20223	22k	5%	0,1W
3399	4822 051 20109	10R	5%	0,1W

CAPACITORS

2250	4822 124 40435	10µF	20%	50V
2251	4822 124 40433	47µF	20%	25V
2253	5322 121 42578	100nF	10%	100V
2254	5322 121 42578	100nF	10%	100V
2255	5322 121 42578	100nF	10%	100V
2257	4822 124 41995	6800µF	20%	25V
2258	5322 121 42578	100nF	10%	100V
2259	5322 121 42578	100nF	10%	100V
2260	5322 121 42578	100nF	10%	100V
2261	4822 124 42121	4700µF	20%	35V
2262	4822 124 42121	4700µF	20%	35V
2263	5322 121 42578	100nF	10%	100V
2264	5322 121 42578	100nF	10%	100V
2265	4822 124 42121	4700µF	20%	35V
2266	4822 124 42121	4700µF	20%	35V
2267	5322 121 42578	100nF	10%	100V
2268	4822 124 41799	220µF	20%	63V
2269	4822 124 41799	220µF	20%	63V
2270	4822 124 41799	220µF	20%	63V
2271	4822 124 41992	220µF	20%	35V
2272	4822 124 40433	47µF	20%	25V
2273	4822 124 40244	2,2µF	20%	63V
2275	4822 124 40433	47µF	20%	25V
2276	4822 124 42314	47µF	20%	25V
2277	4822 124 40433	47µF	20%	25V
2278	4822 124 40178	100µF	20%	10V
2292	4822 122 33064	330nF	20%	25V
2293	4822 122 33064	330nF	20%	25V
2303	5322 121 42578	100nF	10%	100V
2304	5322 121 42578	100nF	10%	100V
2307	5322 121 42578	100nF	10%	100V
2308	5322 121 42578	100nF	10%	100V
2343	4822 124 40244	2,2µF	20%	63V
2344	4822 124 40244	2,2µF	20%	63V
2347	5322 121 42386	100nF	5%	63V

CAPACITORS

2348	5322 121 42386	100nF	5%	63V
2362	5322 121 42578	100nF	10%	100V
2363	5322 121 42578	100nF	10%	100V
2379	4822 124 40178	100µF	20%	10V
2380	4822 124 40246	4,7µF	20%	63V
2384	4822 124 40433	47µF	20%	25V
2387	4822 124 40435	10µF	20%	50V
2388	4822 124 41643	100µF	20%	16V
2390	4822 124 41997	470pF	20%	10V
2391	4822 124 40433	47µF	20%	25V
2392	4822 122 31746	1nF	5%	50V
2393	4822 122 31746	1nF	5%	50V
2394	4822 124 40435	10µF	20%	50V
2395	4822 121 51379	82nF	10%	63V
2396	5322 121 42386	100nF	5%	63V
2399	5322 121 42489	33nF	5%	100V

CHIP CAPACITORS

2274	4822 122 33496	100nF	10%	63V
2279	4822 122 31797	22nF	10%	63V
2301	4822 122 31775	680pF	5%	50V
2302	4822 122 31775	680pF	5%	50V
2305	4822 122 31775	680pF	5%	50V
2306	4822 122 31775	680pF	5%	50V
2309	4822 122 31965	220pF	5%	
2310	4822 122 31965	220pF	5%	
2311	4822 122 32442	10nF	10%	50V
2312	4822 122 32442	10nF	10%	50V
2341	4822 122 31965	220pF	5%	
2342	4822 122 31965	220pF	5%	
2345	4822 122 31765	100pF	5%	50V
2346	4822 122 31765	100pF	5%	50V
2360	4822 122 31775	680pF	5%	50V
2361	4822 122 31775	680pF	5%	50V
2364	4822 122 32442	10nF	10%	50V
2371	4822 122 31965	220pF	5%	
2377	4822 122 31971	10p	10%	50V
2378	4822 122 31965	220pF	5%	
2381	4822 122 31765	100pF	5%	50V
2389	4822 122 31797	22n	10%	63V

Service
Service
Service

Product Service Group CE Audio

Service Information

Adaption to partslist

On page 73 of Service Manual the codenumber for µP 7830 is missing.

Pos. no	Servicecode	Description
7830	4822 209 30694	COP881C- RUJ/D

A93-357

Service
Service
Service

Product Service Group CE Audio

Service Information

The codenumber for the microprcessor on the ***FRONT PANEL*** (Pos. 7400) should read **4822 900 10438.**

An OTP (TMP47P1670VN) will be delivered. This IC is compatible to the original microprocessor with the latest software (TMP47C1670N-V139) and can be inserted without further changes.

Attention: After insertion, the set is in the *TRADE MODE*. In this mode the CD-Door doesn´t work. To leave the *TRADE MODE* press the buttons **RECORDING, MODE** and **A.R.C.S.** together in stand by.

1993-06-01

GB 4822 725 24905

CS 51 715